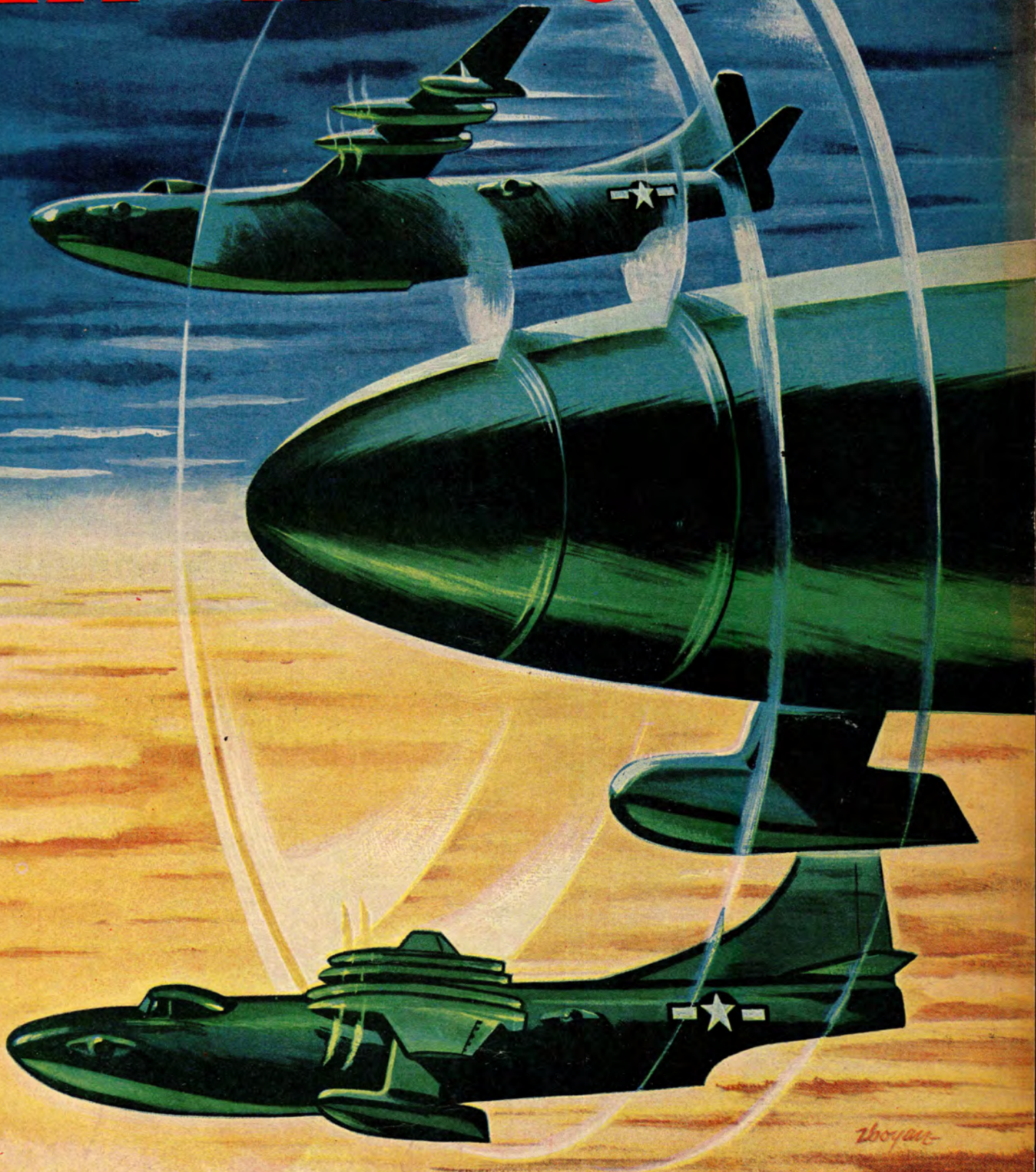


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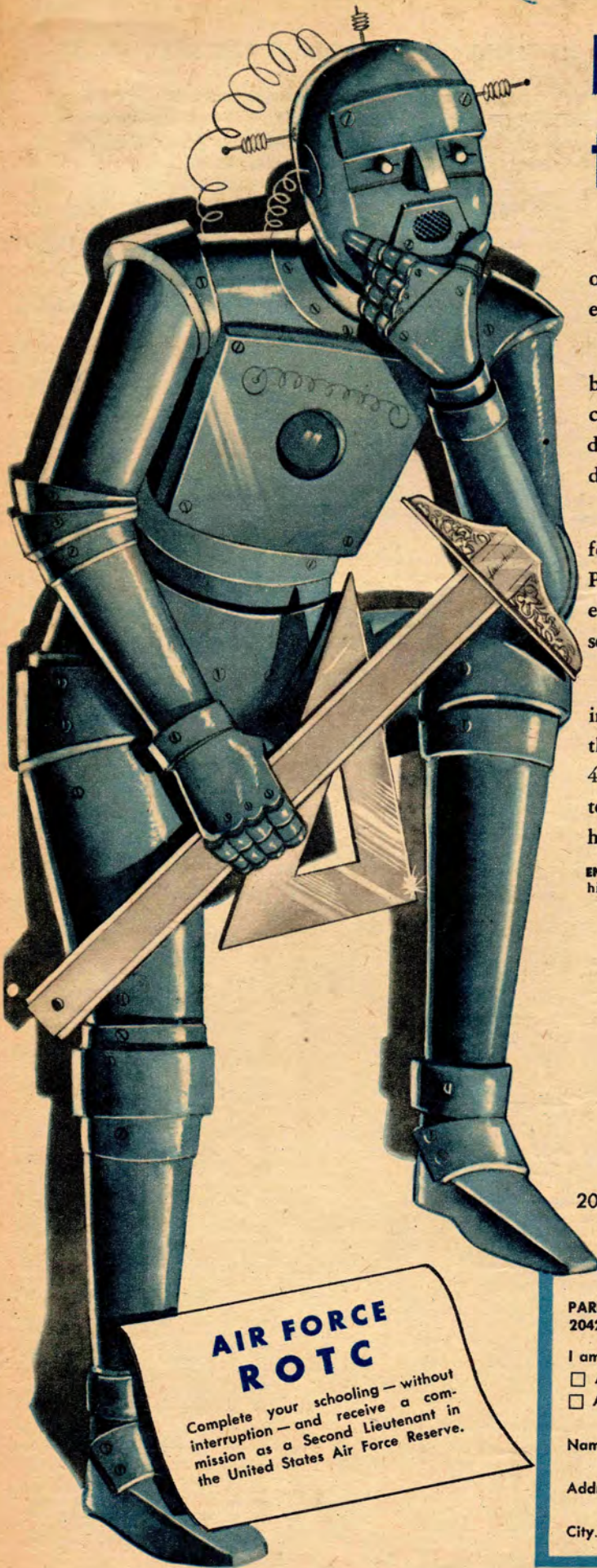
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April
1952

Vol. 38, No. 1



Cover: R3Y-1
Transports—by Zboyan

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Editor: Albert L. Lewis. **Technical Editor:** Alexis Dawydoff. **Editorial Production:** Carl Happel. **Art Director:** W. F. Tyler. **Editorial Assistants:** Rose Borello and Rosalba Accardi. **Special Correspondents—Washington:** Kendall K. Hoyt; **West Coast Modeling:** Dick Everett.

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Walter J. McBride, Advertising Mgr., 575 Madison Ave., New York 22; Frank C. Smith, Mid-Western Adv. Mgr., 230 No. Michigan Ave., Chicago 1; West Coast Advertising Representative, Kimball, Menne Co., 1052 W. 6th St., Los Angeles 17, California.

AIR TRAILS published monthly by Street & Smith Publications, Inc., at 575 Madison Ave., New York 22, N. Y. Entered as second class matter at the post office at New York, N. Y. Authorized as second class mail Post Office Dept., Ottawa, Canada. Copyright, 1952, by Street & Smith Publications, Inc. 35¢ per copy—\$3.50 per year, \$7.00 per year in countries of the Pan-American Union; \$4.50 per year in Canada; \$10.00 per year elsewhere. This issue is Vol. XXXVIII, No. 1. Please advise us if you move; allow four weeks for change of address. Give old and new address when notifying us. Subscription correspondence should be addressed to Subscription Dept., Street & Smith Publications, Inc., 304 E. 45th St., New York 17, N. Y. All characters used in fiction and semi-fiction stories in this magazine are fictitious. We cannot accept responsibility for unsolicited manuscripts or art work. All submissions must include return postage. Printed in U.S.A.

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FROM THE READER

All communications to the editorial offices should be addressed to Air Trails, 304 E. 45th St., New York 17, N. Y.

We Credit Major Schwartz . . . We here at Boeing were all very much pleased with that swell cover shot on the February issue. However, we were a little embarrassed inasmuch as the picture you used appears to be taken by Major Phil Schwartz, who is on the staff of the Commander, Pacific Division, MATS. Major Schwartz, who not only is one of our very best friends but also is a top Air Force public relations officer, doubles in brass with a camera and also finds time to fly the MATS route to and from Tokyo every few weeks. I wish there was some way you could give him proper credit for that cover as I know he would greatly appreciate it.

Gordon S. Williams, Assistant Manager,
News Bureau, Boeing Airplane Co.

AMA Scale Plans Rule . . . Some time ago I wrote to you regarding the plans for the Fleet Biplane and the Spirit of St. Louis as appearing in Air Trails. At Detroit the Spirit of St. Louis was accepted and full plans given but the Fleet was not. In your answer to me you told me that both plans were "extremely accurate." I have finally got an answer from AMA, and they point out the rule on page 69 of the rule book, which I will not again quote here. There is no doubt about it that the rule is misleading in connection with "3-views." However, AMA tells me that working plans are acceptable if there is a note to the effect that such plans have been checked and found accurate.

Now would you please do me a favor and more than likely all the scale model builders across the country, the contest directors, and all scale model judges. This is it: Publish a line or two on scale models you have published in the last year or two that have been checked as accurate; also in future issues, all scale models plans should be noted as worthy of passing AMA judges. That is all there is to it.

Arthur J. May, Bismarck, N. D.

● Note to all contest directors: The flying scale model plans in Air Trails are checked with authoritative sources and are considered by the editors to be completely accurate.

French Mid-jet Engine . . . In a recent issue you had a short article on the new possibilities of Mid-jet Racers. In this it was mentioned that Continental Motors Corp. has acquired manufacturing rights for the French-Palas mid-jet engine.

My partner and I would appreciate it very much if you could send us the proper address of Continental connected with this project.

Cpl. Ernest R. Marker, Jr., Briggs AFB, Tex.

● The Turbomeca jet engines will be built by Continental Motors Corp., 1500 Algonquin Ave., Detroit 14, Mich.

Suggestion for Afterburner . . . I have an idea that I would like to know if it is feasible. Could an "afterburner" be added to the exhaust of a piston engine? A spray of fuel could be injected into the exhaust and ignited by the hot gases. For take-off, etc.

John Ruby, Aurora, Ill.

● Your idea is not practical as gain in power will not be sufficient to overcome very high fuel consumption.

Airacomet in WW II . . . Were the P-59 Airacomet and P-80 Shooting Star used in actual combat in World War II or not?

Marvin Schneider, Weimar, Tex.

● Neither the P-59 nor the F-80 were ever used in actual combat, though a couple of F-80's were sent to Europe toward the end of the war for demonstration purposes.

Gloster Meteor Record . . . Back in your December 1951 issue you stated in the article "World's Leading Airplanes" that the Gloster Meteor 8 is a "descendant of the first Allied jet fighter to see active service in World War II." Now I think I can say that your information would be reliable. However, the Reader's Digest (another magazine which is usually reliable) in a previous edition stated that the German Air Force had the only operational jet planes in the world until after the end of World War II.

The article stated that there were Allied jets such as the Meteor and the Airacomet, but that they never saw combat as did, for instance, the Messerschmitt Me. 262A-1. Who's right?

I have one other question. I have been told that the prototype design of the F-51 Mustang was purchased by North American Aviation from Willy Messerschmitt in the Thirties. True?

William L. Farrar, East St. Louis, Ill.

● Although there is no record of the Gloster Meteor having ever engaged in a battle with German aircraft, according to 1945-46 edition of the British authoritative "Jane's All the World's Aircraft": "The Meteor has the distinction of being the only Allied jet airplane to go into operational service in World War II. The Meteor first flew in March 1943, and it shot down its first German V-1 flying bomb on August 14, 1944. After being in action against the flying bombs from bases in South England, the Meteor went overseas and served with 2nd Tactical Air Force in Northern Europe." The P-51 Mustang design was never purchased by North American from Messerschmitt. It is their own design.

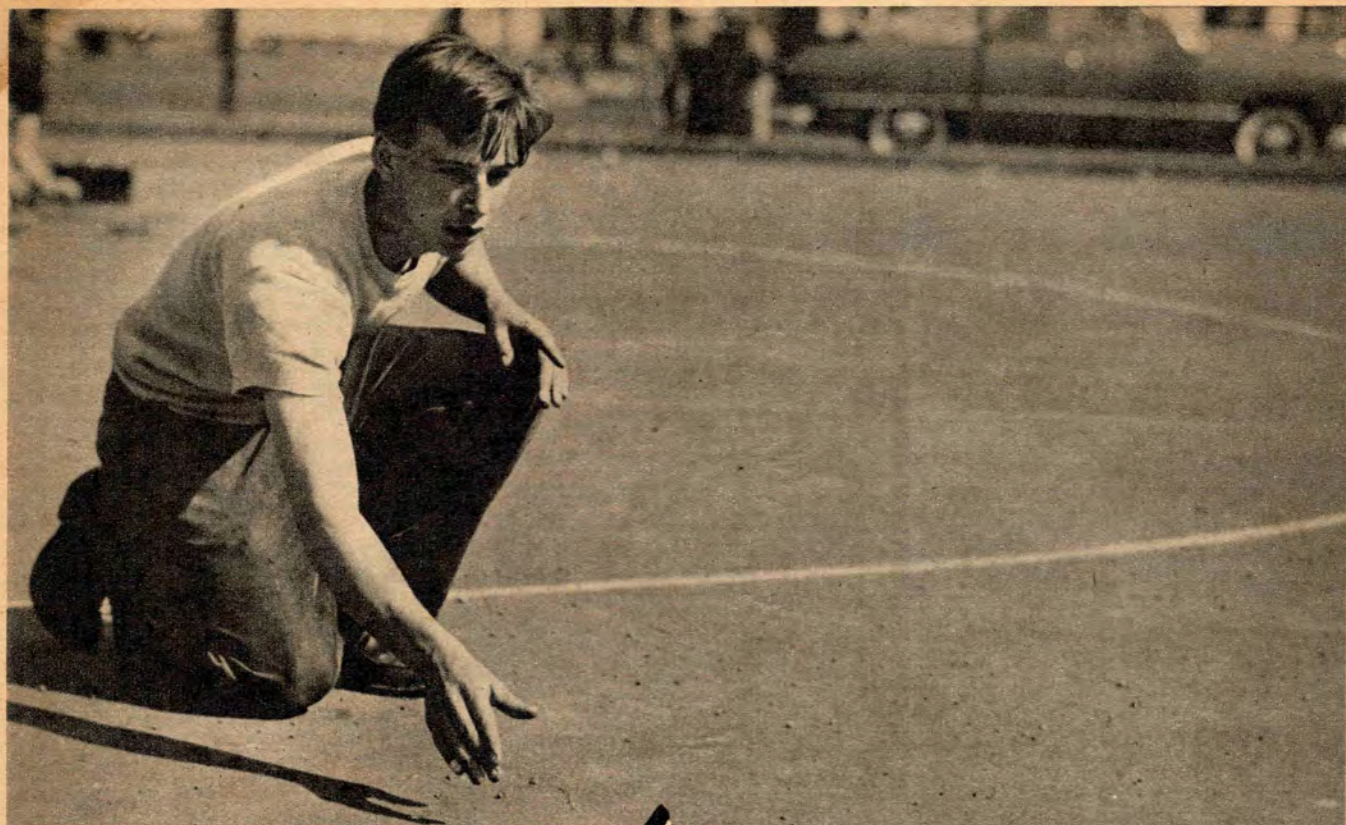
Me 109A-B-C-D??? . . . Looking through my collection of material on German aircraft I am unable to find anything on the Me. 109 prior to the "E" model. What happened to the A, B, C and D versions?

Harold Johnson, Ft. Worth, Tex.

(Continued on page 8)

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From the Reader

(Continued from page 4)

• A timely question (incidentally, for material to add to your collection, see the Rolfe drawings of the Me. 109E on pages 26 and 27 of this issue). Actually there wasn't any Me. 109-A, B, C, or D. The airplane prior to E model bore the designation of Bf. 109 of which A, B, and C models existed. The "Bf" is an abbreviation for Bayerische Flugzeugwerke (Bavarian Aircraft Works), the firm which built these planes up to about 1938. It was founded in 1926 and Willy Messerschmitt was its chief designer. Sometime in the 1930's BFW got into financial difficulties and was taken over by Messerschmitt, who was in very good standing with the Nazis, especially Herman Goering. The 109 design (Bf. 109) first flew in 1934, and the production version Bf. 109B saw active service in the Spanish war. As a result of its experience in this war many modifications and improvements were made on subsequent models. Me. 109E was the first production version of the Messerschmitt AG factory and it was with this model the German Luftwaffe entered World War II.

What Makes Banshee Wail? . . . From different sources, I have read that the Northrop F-89 had two Allison J-35 turbojets. I also read the Navy's Banshee is powered by two Westinghouse J-35 jets. I would like to know whom the J-35 belongs to.

Bob Campbell, Turtle Creek, Va.

• We are afraid that you have made a mistake. The Northrop F-89 is powered by two Allison J-35's while the McDonnell Banshee has two Westinghouse J-34 engines.

Habla Usted Español? . . . I am a Spanish model builder and because of my great interest in this great hobby, I wish to make contact with an American modeler, with the purpose of exchanging ideas and holding correspondence. I would be immensely grateful if you gave me such a person to be in contact with.

I am very sorry to inform you that I do not know English, but do not believe this will be a hindrance, nor difficult to overcome.

Angel Pelaez Lopez,
Monserat 20, Madrid, Spain

• Foregoing is a translation of Señor Lopez's letter. We assume that any correspondence on his part will also be in Spanish.

FDB-1 Scale Plans . . . I'd appreciate very much if some of the scale model fans would write to me. I'm trying to secure a set of plans of the Brewster (I believe) that appeared in an earlier issue of Air Trails under the heading "Last of the Biplanes." I have numerous scale model plans, including several Air Trails jobs. I'd be most happy to help anyone in this sort of predicament.

H. D. Lowery, Route #3, Gadsden, Ala.

• **FDB-1**, "Last of the Biplane Fighters," appeared in the March 1950 issue of Air Trails. Plans are no longer available but you may obtain the March 1950 issue from our Back Copy Department for 35c.

B-36 Figures . . . Would you tell me the wingspan and the length of the fuselage of a B-36 bomber? Also, the kind of engines used?

Roland F. Wishowski, Johnson Creek, Wis.

• Wingspan of the B-36 is 230 ft., length of fuselage 162 ft. It is powered by six Pratt and Whitney R-4360 engines of 3500 hp each and four General Electric J-47 jet engines of 5200 lbs. thrust each.

End of Rainbow . . . Whatever happened to the Republic Rainbow? What date was it built? What was its speed and how many passengers could it carry? And is it still in use? Also I would like to know the top speed of the B-17.

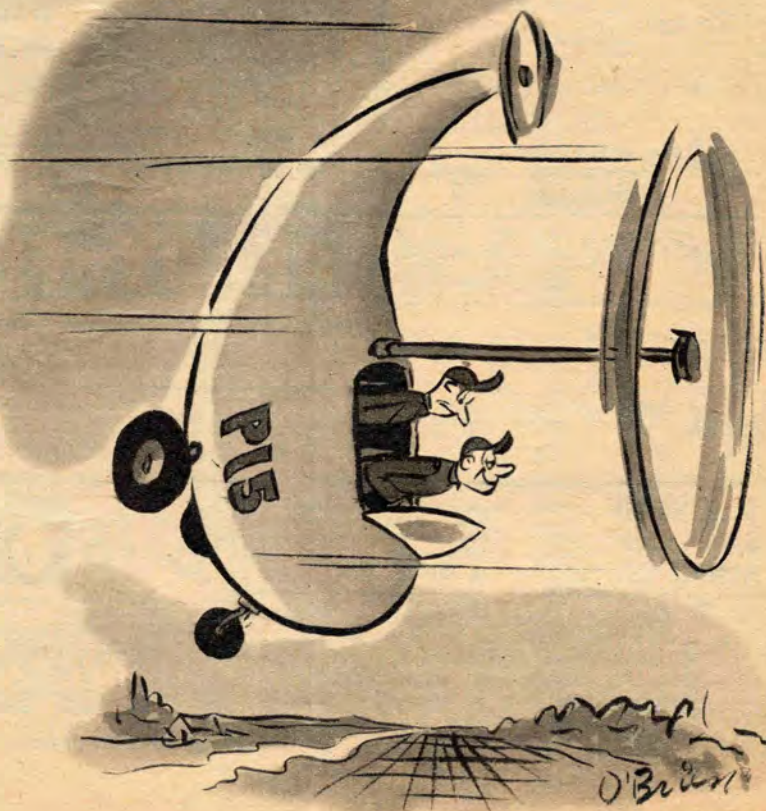
Jack Potes, Sulphur, Okla.

• Only two of the Republic Rainbows were built; both were photo-reconnaissance planes. We understand that both crashed. They were built in 1946. Top speed of the B-17 was around 250 mph.

Why Only 20-mm Cannon? . . . I was looking at some World War II planes. It says that the Airacobra carried a 37-mm cannon. I also read that the Russian MiG-9 carries a 43-mm cannon and three 20-mm cannon. The U.S.A. only uses 20-mm. Why?

Ernest M. Bernal, San Antonio, Tex.

• A number of our Air Force and Navy planes are armed with 20-mm cannons. However, the military services feel that because smaller caliber guns have a faster rate of fire than the heavier ones, the chances of getting hits with present-day fast-flying fighters are better.



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CIVIL AIR PATROL NEWS

More Cadet Squadrons are the aim of new regulations from CAP headquarters. Any community may now organize to train young people without forming Senior Squadrons.

The Squadron is the local unit of CAP; the term "Flight," previously the smallest link in the chain, is no longer used. A small Senior or Cadet Squadron may be formed with 8 members but must be built to at least 15 within 6 months. A large one runs from 30 to 100 members.

The Cadet Squadron has its own commander and staff, under an adult Commandant of Cadets who reported to the Senior CAP Squadron Commander under the old system. Now a committee of as few as 3 adults may be formed to start and direct a Cadet Squadron, under authority of the CAP Group for that part of the State, or directly under the State Wing.

In this way, businessmen and youth leaders can take hold of the program; receive authority for the CAP Cadet uniform to be worn; and get manuals and training aids from the Air Force.

Even where there are Senior CAP units, the trend is toward separation from the Cadet work. The adults do their own flight and radio practice. They furnish ground instructors and give airplane rides for the Cadet program. Flight training is not given by CAP but local funds may be raised to purchase instruction from flying schools.

The point of the new system is that you can form a unit easily and get Air Force help. Many inquiries received by Air Trails over the years have shown a widespread desire of young people to receive these benefits in more places than CAP ever has been able to organize.

The coupon on this page will get you in touch with the State Wing or the nearest CAP unit. Mail it to Air Trails today. Once the contact is formed, you have the means to negotiate for the start of an activity supervised by the U. S. Air Force through its Congressionally chartered Civil Air Patrol.

Cadets Will Travel in a series of events this spring and summer. Plans for the annual dinner for Congress, in Washington, call for flying an outstanding Cadet from each of the 52 State and Territorial Wings.

Also there's the annual drill competition. After Wing and regional trials, the national team will be selected in Washington. Then comes the international, in which Scotland won the General Beau cup last year, in a tussle with Britain, Canada, and the United States.

It is hoped that this year's precision drill will be at the National Air Races in Detroit, in the presence of great crowds with the music of the RCAF and USAF bands.

Then there's the annual encampment at Air Force bases. Those who join the CAP Cadet program at once may qualify if they are diligent and if there are vacancies left after those longer in the work have had their chance to go. Here are two weeks of GI life, with opportunity to observe planes and all sorts of equipment in use.

The annual Cadet exchange with foreign nations is on again, bigger than

ever before. With the addition of Belgium and Western Germany, 16 countries will be visited by a total of some 150 U. S. Cadets, a few to each, and an equal number of foreign youngsters will visit us.

New York as well as Washington will be included in the U. S. tour.

More Aircraft Radios are a need, foreseen by CAP, which may become pressing if emergency strikes. Conferences between civil aviation people and the Air Defense Command have pointed the way toward as much flying as may fairly be permitted.

But the constant watch for enemy raiders will require radios for all but local flight, especially in the ADIZ or Air Defense Identification Zones. Thus, pilots can file position reports and may be ordered to land and clear the air when a radar search for a suspected enemy is on.

Since only 20% of aircraft now flying are equipped with two-way radio, the need is not only for installing sets in as many more as possible but for a very light portable VHF set which can be put in a plane.

Announcements on this subject are coming in the near future.

An Exciting Search, among the many missions being performed month by month in CAP, was made by the Nevada Wing to find the sailplane flown by Karl Ovgard, a Swedish scientist, studying the Bishop (or Sierra) Wave, a standing updraft which may carry a glider as high as 50,000 feet.

Evidently the oxygen system failed and Ovgard crashed after he had lost consciousness in the thin upper air. He was working on a project of the University of Southern California.

Some Local Teacher in your area may learn how to instruct in air age subjects through a "workshop" to be held this summer at the University of Colorado. Purpose is not only to show how to instruct classes but to tell other teachers how to do the job.

CAP study manuals will be used. CAA and other aviation organizations will send experts to talk. As in the experimental project in Puerto Rico last year, model aircraft will be made and flown as part of the course.

Join the Civil Air Patrol—the civilian auxiliary of the U. S. Air Force. Cadets are 14½ to 17; Senior members 18 and over.

C. A. P. NEWS c/o Air Trails
304 East 45th St., New York 17, N.Y.

I'm interested in more information on the CAP and would like to hear from my nearest unit.

Name.....

Address.....

City (and Zone).....

State..... Your Age.....

Air Trails, April '52

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24

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Douglas AD-1 Skyraider	No. Am. T-28 Trainer	Lockheed C-69 Constellation
No. Am. P-51 Mustang	Convair B-36 Bomber	Boeing B-29 Superfortress
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PREFABRICATED KITS — NO DIFFICULT CARVING



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America's leading stunt plane

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SPECIFICATIONS

Wing Span 47 in.	Weight approx. 26 oz.
Wing Area 470 sq. in.	Speed 60 to 75 M.P.H.
Length 30 3/4 in.	Engine 23 to .35 disp.

First in '50...now first in '51

A JUNIOR VERSION OF THE STUNT CHAMPION BARNSTORMER

CLASS 1/2A Baby BARNSTORMER

SPECIFICATIONS

Wing Span 23 1/2 in.
Wing Area 118 sq. in.
Length 15 1/4 in.
Weight approx. 4 1/2 oz.
Engine 035 to .049 disp.

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The ideal stunt ship for 1/2A enthusiasts. Designed and tested by Lou Andrews, the

"Baby" will do all the stunt patterns in the book — a real feat for a ship of this size.

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Boys! SEE YOUR LOCAL DEALER FOR GUILLLOW KITS - IF NOT AVAILABLE, SEND DIRECT TO FACTORY, ADDING 15¢ TO ALL MAIL ORDERS
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CURTISS SB2C HELLDIVER

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 Check One ☐ Veteran ☐ Non-Veteran

TRAIN IN MIAMI - AIR CAPITAL OF THE WORLD

R/C

Around the modelplane radio-control circuit... comment and reports by a leading authority

■ As we write this we get the impression that the R/C builders—and the manufacturers, too—are in hibernation. There are two reasons for this. One is the normal quiet winter spell during which everyone rebuilds, repairs, and remodels in anticipation of the coming flying season. The other is that we are all now in a sort of "hold your breath and keep your fingers crossed" period, awaiting the outcome of the F.C.C. action on the license proposals. Last word we had was that not many expressions of opinion had reached the Commission on the proposals, but all were favorable. This is a good sign, for if there are no dissenters, it is likely that the proposals will be incorporated into the rules with little delay.

In this case, the F.C.C. has seen the need for changes and has drawn up what they felt were a fair set of new rules. These changes actually cover many angles of the Citizen's Radio Service, but the ones of interest to R/C flyers are those which have been urged by the AMA and its R/C committee. If no one opposes, it shouldn't be long now!

Most flyers will want to have equipment on hand to go into action immediately the word comes through. Practically all present receivers that have been operated on the 50 mc. Ham band can be converted to work on 27.255 mc. This simply requires a change in the tuning coil and perhaps the condenser. However, the rules specify an entirely new type of transmitter, or at least one that is new to the R/C

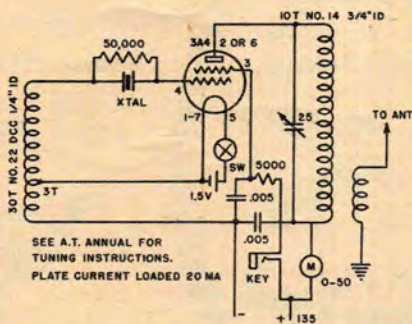
flyer not versed in radio technique. We must use crystal control on the new spot.

Lest this scare you off, take a look at the simple transmitter that was described on page 71 of the new *Air Trails Model Annual*. Though the power is lower than many are accustomed to, it will give fine results, as tests in several areas have proved conclusively. If you want to add a bit more power, you can change the tube to a 3A4 and use the circuit values shown in Fig. 1 herewith. The 3A4 is a low cost tube (net price is about \$1.20 from the big radio mail order houses) and will give about half again the power that can safely be had from the A.T. Annual circuit. While the two circuits are very similar, the tubes are not interchangeable due to the difference in socket connections.

Members of the AMA R/C Committee are checking every crystal circuit they can dream up to try and locate the perfect one. To this end, Walt Good recently made a trip to New Jersey and he and your conductor spent a weekend in the cellar workshop experimenting with transmitters. Many usable circuits were tried, but we want to give them a thorough test before coming out with the "perfect" circuit, if there is such a thing.

The problem is to get one that is as simple as possible, has an output fairly comparable to the usual 3A5 transmitters now so widely employed, and yet has no bad tricks that would confuse the uninitiated, or get him on the wrong frequency. The harmonic-type crystals that we must use all have to be used in regenerative circuits, and all such circuits have the unfortunate tendency of oscillation on other than the crystal frequency, if care is not taken in tuning up. Thus, the problem is to find the simplest one that gives good output, yet is the least bad actor in the latter respect.

If any of the experienced R/C boys have some pet circuit that they feel would fill these specifications we would welcome a word from them. Meanwhile, the *Model Annual* circuit using the tube specified, or the 3A4 circuit shown here, will do a fine job. Tune-up procedure is the same for (Continued on page 59)



Crystal controlled transmitter for 27.255 mc. (above). In response to requests for illustration of license-free R/C band "permit," herewith is Author McEntee's card.

WARNING

Discipline operative immediately should the equipment fail to function in a normal manner.

Do not tamper with equipment.

Don't make "recovery" tests.

Don't use in a "party line" system.

Not Transferable

Citizens Radio Commission - of all units to avoid interference.

Prohibited.

New for Nov. 1961

a new license showing

of all time.

Only with the law and

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Class Station
B (A or B)
FCC type
approved No.
CR-403

Number of Transmitters
1

Not to be filled in by applicant
2A0019

April 30, 1961
1 CR-403

(This authorization expires 5 years from date of issuance)

air notes

AVIATION TODAY
AND TOMORROW

FOR EVERY one "engineering man-hour" on a typical World War II plane there are 100 EMH's on today's typical guided missile. . . . INSECTICIDE SPRAYING, mostly from airplanes, saved more than \$5 million worth of Oklahoma wheat.

STUNT ACE Marion Cole of Ke-wanee, Ill. won the title of National Aerobatic Champion after recount at Miami Air Show. . . . CORRESPONDENCE COURSE in aviation covering subjects required in CAA private pilot exams is available from University of Illinois, Urbana-Champaign, Ill. Offers three units of college credit for those wishing credit. Available to men in service through Armed Forces Institute. Price of the course is \$15, with books and materials costing an additional \$4.50. . . . NORTH AMERICA XA2J-1 Savage proudly rolled out of the company's Los Angeles plant. Plane is powered by two Allison T-40 turbo-prop engines with six-bladed contra-rotating propellers and a turbo-jet in the tail.

FIRE IN THE AIR destroyed British four-jet-engine Vickers Valiant bomber; crew escaped by parachute via ejection seats. . . . AGRICULTURAL FLYING was placed on "critical occupations in the defense effort" by the Labor Department. Pilots so engaged will be considered for deferment by draft boards.

EASTERN AIRLINES have named their Martin 404's Silver Falcons. TWA's name for them is Skyliners. . . . SIX-TEEN THOUSAND DOLLARS has been paid out by AiResearch Manufacturing Co. of Los Angeles, Calif. to 250 employees for award-winning suggestions submitted during 1951. . . . SIX MAJOR aircraft manufacturers on the Pacific Coast were employing 160,107 workers as of December 15, 1951; 112,180 working in the four airframe companies in the Los Angeles Area. . . . DOUGLAS DC-7, newest of a long line of airliners, will have a fuselage 8 feet longer than the DC-6 and be powered by four Wright turbo-compound engines developing a total of 13,000 hp. Top speed will be in excess of 400 mph, passenger capacity from 60 to 90. Twenty-five DC-7s are on order by American Airlines.

SIXTY SCHOOLS of RAF's Combined Cadet Forces will receive gliders for training of cadets. . . . DE-ICING system for helicopter blades has been successfully developed by Bell Aircraft Corp. Heretofore icing was a serious problem and no method to get rid of it existed.

PLANS for building a 143 Wing Air Force have been set back for at least one year. U.S. will not get 143 wings until late 1955 or early 1956. In the meantime, it is estimated that Russia is producing 40,000 military planes a year. . . . BRITISH COMMONWEALTH

Pacific Airlines, affiliate of BOAC, is purchasing six de Havilland Comet jetliners. . . . SIX B-36's of Strategic Air Command flew non-stop from Carswell AFB, Fort Worth, Texas, to French Morocco. Return trip was also made non-stop, this 5,000-mile homeward flight being accomplished in 24 hours. . . . CANADIAN JET FIGHTER, CF-100, established a Canadian speed record recently when it flew from Toronto to Montreal at an average speed of 638 mph.

TULSA DIVISION of Douglas Aircraft Co. will be expanded to include modification as well as production of the Boeing B-47 Stratofortress. . . . ALFA, BRAVO, COCA, etc. instead of Able, Baker, Charlie, is the new pronouncing alphabet for radio communication officially adopted by International Civil Aviation Organization (ICAO). Only one word, "Victor" for "V", was salvaged from the old list. . . . SCHEDULED AIRLINES of United States do not favor the use of government funds to develop a commercial jet transport plane, according to Vice Admiral Emory S. Land, president of Air Transport Association. However, they are in agreement that funds for testing such aircraft should be provided by government. . . . U. S. ARMY GROUND FORCES have contracted to purchase four Beechcraft Model 50 Twin-Bonanzas. The planes will bear designation YL-23.

MISTRAL jet fighters, de Havilland Vampires built under license in France, are coming off production lines and entering service with the French Air Force. . . . NORTH AMERICAN B-45 with five jet engines serves as a flying jet laboratory for General Electric Co. Fifth engine, under test, is suspended from belly of fuselage, and can be retracted into bomb bay.

NEW WORLD SPEED record over a 300 km closed course (352 miles) for airplanes weighing between 2200 and 3850 lbs. was established by a Russian pilot, Nicholas Kouznetzov, in a Yak-18 trainer powered by a 160 hp M.11 engine. The speed was 157 mph.

BOOKS RECEIVED: 1951-1952 edition of Jane's All the World's Aircraft. The fully revised edition of this series, recognized as the authority in the realm of aviation since 1909, contains complete information on military and civil aircraft and aviation in every nation. Price \$22.50. Published in USA by McGraw Hill Book Co., 330 West 42nd St., N.Y.C.

Baugman's Aviation Dictionary and Reference Guide. Aero Publishers Inc., 2162 Sunset Blvd., Los Angeles, Calif. Price \$7.50.

The Army Air Forces in World War II. Edited by W. F. Craven and J. L. Cate, University of Chicago Press, 5750 Ellis Ave., Chicago, Ill. Three volumes of proposed seven have been published so far.

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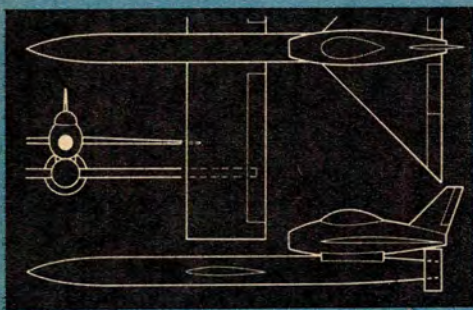
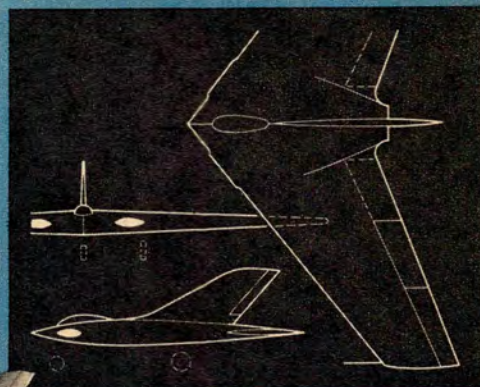
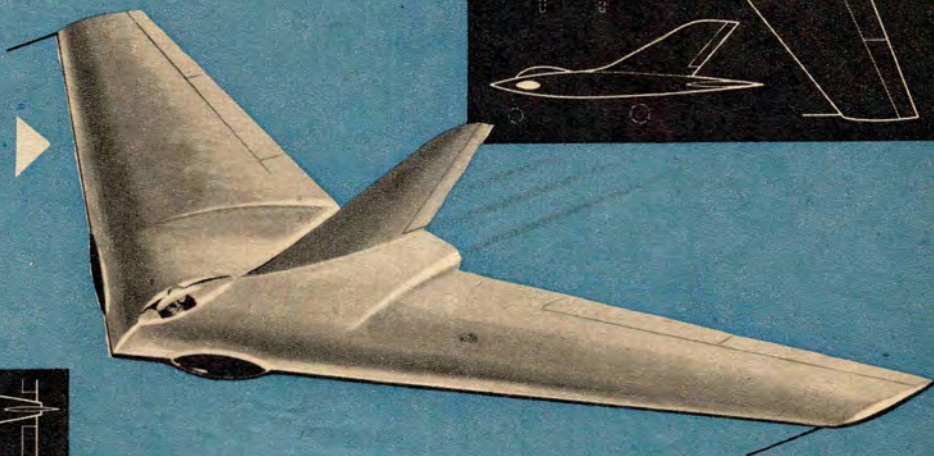
CITY _____ ZONE _____ STATE _____

High School Attended _____ Graduated Yes ☐ No ☐
AT-4 Check one: ☐ Veteran ☐ Non-Veteran

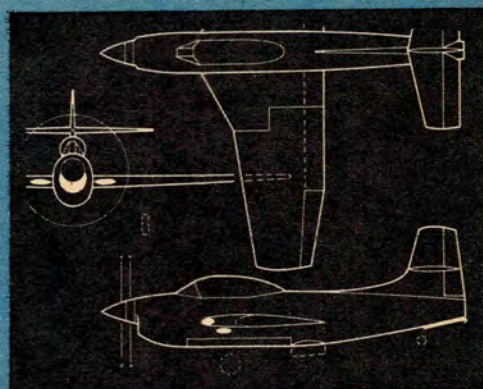
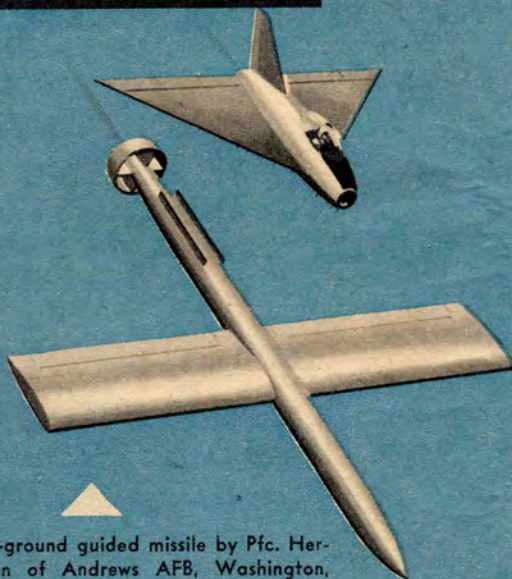
Airmen of Vision

DESIGN COMPETITION

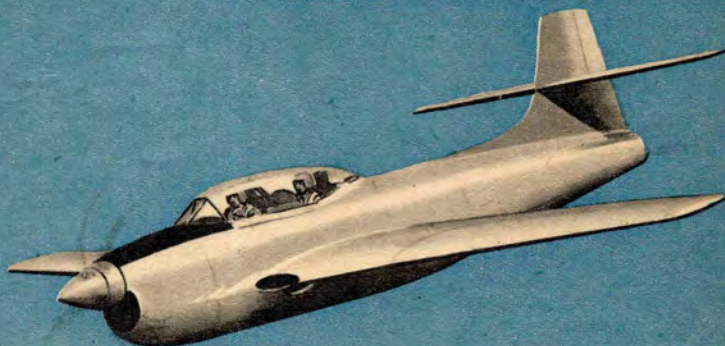
Judged as the best design of the month, this fast-climbing interceptor is the work of Eugene Gravelle of Masury, Ohio. It is powered by two 20,000 lbs. thrust jet engines which give a rate of climb of 12,000 ft. per minute. Pilot entrance is through a hatch in plane's belly in order to obtain unbroken line of canopy, which is jettisonable in case of emergency. Plane is not unlike the German Lippisch P-11 Delta wing.



Turbo-prop-jet submarine killer by Stuart Kester of Grant's Pass, Ore. Plane is designed to operate from carrier. Has two engines, one behind pilot driving one prop through long shaft, the other in nose connected to the second prop. Bombs and depth charges are stowed in bomb bay. Has four 20 mm cannon in wings, m.g.'s in rear.

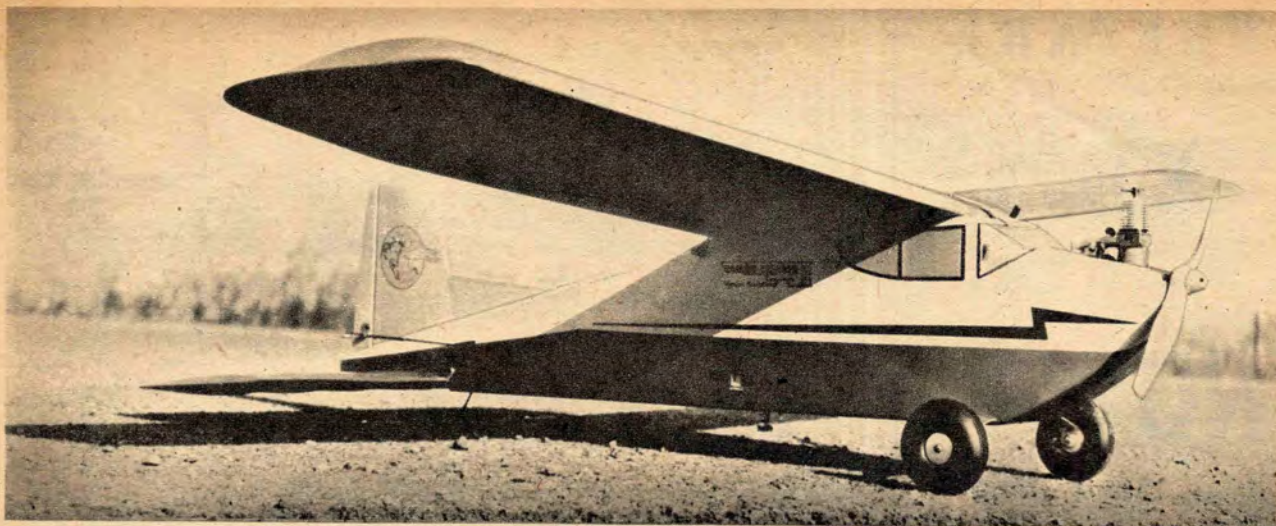


Giant air-to-ground guided missile by Pfc. Herbert Beaujon of Andrews AFB, Washington, D. C. This interesting project consists of a 45-ft. guided missile astride of which rides a piloted jet fighter. The combination is launched from a ramp with guiding toward target done by pilot in fighter. Upon reaching target, missile is aimed at it and released from fighter, special devices keeping it in line with target. Designer claims device cheaper than bombers.



Air Trails has opened its columns to those who are interested in presenting plans for "aircraft of the future." Rules governing the competition are as follows: Three-view sketches of the proposed aircraft will be required. These should be not less than 8 1/2 x 11 inches for the entire three-views. Give sketches of the complete airplane in three-quarter front and rear positions. Photos of a model of proposed design may be included. Information on power plant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and

judges. The designs may be of any type: commercial aircraft, military planes (fighters, bombers, troop transports), planes for the private flyer and single-engine sporting or racing craft. The entry each month judged the most practical or of the greatest significance will receive an award of \$25. Payments of \$5 will go to the runners-up. Entries will not be returned and for that reason those participating should keep copies of all material submitted. Mail entries to Airmen of Vision, c/o Air Trails, 304 E. 45th St., New York 17, N. Y. Editors regret that because of large number of entries they cannot enter into correspondence on A. of V.



"LIVE WIRE" LIVE WIRE R/C TRAINER

For the first time, —
A MODEL SPECIALLY DESIGNED FOR R/C TRAINING!

The Facts...

The "Live Wire Trainer" has been especially developed for R/C training, it's **STABLE, RUGGED and MANEUVERABLE**, yet simple to fly. Its design allows the use of ANY RADIO including the "Citizen Ship", yet it is as simple to assemble as any "stunt" model! You will marvel at its realistic flight as it performs ALL of the maneuvers without climbing tendencies and returns to the launching point for a spot landing in spite of the wind!

Can be flown
as a sport model
without R/C!

The Specifications...

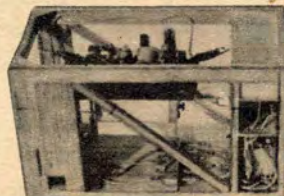
Wing Span ... 48"
Wing Area ... 432 sq. in.
Wing Loading ... 12 oz./sq. ft.
Weight with R/C ... 35 oz.
Power ... Any .09 engine, deisel or glow
Dural Landing Gear
Closely matched power on and off flight
speeds

YOU TOO CAN FLY
R/C with a "Live Wire"!

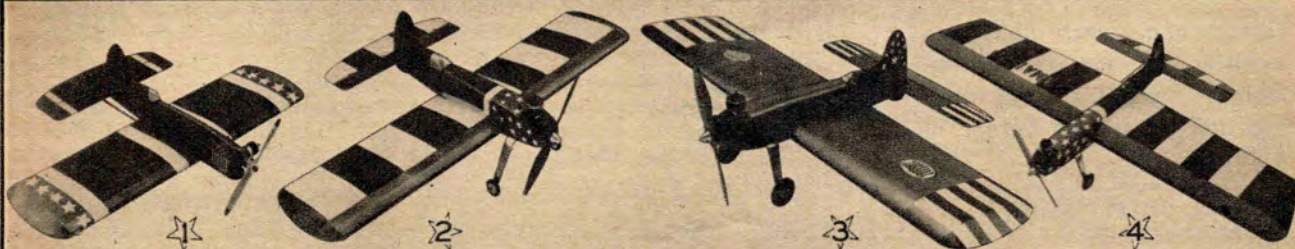
Exclusive Features!

REMOVABLE R/C UNIT

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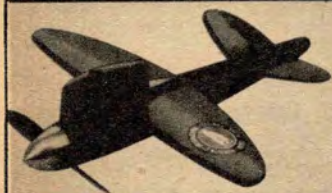
LEARN WITH THE "ALL-AMERICAN" TEAM



<i>All American Jr</i>	<i>All American Jr</i>	<i>"All American"</i>	<i>All American Sr</i>
BASIC TRAINER	STUNT TRAINER	STUNT MODEL	CONTEST STUNT
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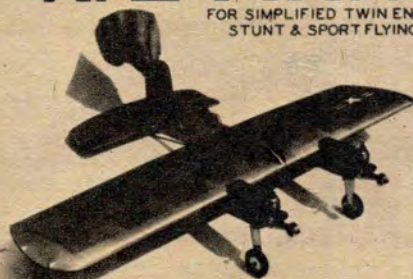


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an affiliate of Aviation Activities Co.
Love Field, Dallas, Texas



Herb C. Friedenthal
Sepulveda, Cal.
Ready for a flight

Joseph P. Heinisch
Downers Grove, Ill.
With C/L model

George Loeschner
Brooklyn, N. Y.
At Teterboro school

Samuel A. Bennett, Jr.
Brooklyn, N. Y.
With Thermic "C"

AIR ADVENTURERS CLUB

■ No football player ever won a game alone. Sure, some player has to go over the line for the winning goal, kick that final point, or stop the other player from scoring his winning point, but who got him into position, threw that accurate pass or took out the charging blockers? The rest of the team. It's a team that wins, and not a player alone. Don't ever forget that, whether it's football or military flying.

For that reason, you young men who have your eyes set upon being a pilot in the United States Navy or the United States Air Force should open up your sights to include the whole fighting flying team, rather than just one position. Each member of the flying services is as important as the next, even if some chores bring more medals than others. There are literally hundreds of positions on the "teams" that wear the Navy blue or the new USAF blue, instead of the eleven who now wear your school colors. Try for the team and not for a position. We can't all be ball carriers or quarterbacks.

The pilot of a plane is important, not because he is a pilot, but because he has an important job to do. It may be anti-submarine patrol; delivering bombs, paratroops, supplies, gunfire or rocket salvos—they are all important. The pilot of a fighter plane is no more important than the pilot of a bombing plane, a little liaison plane or a cargo plane. And those pilots are no more important to the success of the "team" than the navigators, gunners, bombardiers, mechanics, weather men and the rest of the fellows on the "bench," backing up the guy with the ball.

The members of the flying teams

all have equal importance and responsibility. There are the dispatchers, gunners, radar men, radio and communications experts, traffic control men, typists, photographers, clerks, electronics men, ordnance experts and map makers.

There are plenty of jobs in the Naval Air Service and the Air Force for all of you. They will wait... but will *you*? That is not as silly as it reads. Your enthusiasm for joining the flying services is highly commendable, but sometimes enthusiasm for doing a thing runs far ahead of your readiness for the job to be done. This is particularly true of you men in the last year or so of high school; of you men of an age and enthusiasm when you are apt to have that feeling of: "What the heck, I'm going to get into the service sooner or later—let's go *now* and not bother to finish high school," or "What difference does it make what marks I get now?"

Right there, young fellows, is where you make your big mistake, in fact a couple of king-size errors. Let's see how really big they are.

In the first place, the flying services prefer high school graduates at least. If you have had college training, so much the better. The better your marks have been or are, the better too that chance of wings.

Knowing how to study and learn from that studying is important, for a large percentage of your life in the services will be spent in learning: fast, accurately, for keeps. What would be the fate of a plane's navigator and his aircraft should he forget his training far from shore or a familiar landmark ashore? What would happen to the pilot of a single-seater fighter if he forgot the proper



Barbara Ann Liberto
Thornton, Miss.
Aim: stewardess

Anthony Whiting
Leonia, N. J.
In old trainer

Bob Scott
Omaha, Neb.
With Powerhouse "41"

Allen Robinson
New Westminster, B. C.
With 3 ft. DC-3

emergency procedure in a crisis over enemy territory or how to arm his rockets or restart his powerplant in the air? What would happen if a radar man bringing a plane-load of wounded down through the overcast in zero-zero weather forgot what to do next?

Lessons in the Navy or the Air Force are usually learned but once and for keeps—or else. You might as well start right in school to learn like an airman. Train yourself through discipline as well as real interest in your subjects to be ready for what Uncle Sam will have to teach you to make you valuable to his team, no matter which you choose.

Pay particular attention to mathematics, physics, geometry, and science. All of these will come in handy in the service, and the more you know about them the further up the ladder you will be able to climb. An accurate understanding of figures will help almost more than any other talent, for all through your service life you will come into contact with numbers. From file clerk to fighter pilot, or from deck hand to carrier pilot, numbers will just about rule your final destiny as a member of the team.

Spend all the time you can between now and when you eventually enter the service of your choice in cramming all the schooling you can into that head of yours. Even the subjects with no apparent connection with aviation will serve a purpose—teaching you to study, plan your homework and establish the main items of the lesson in your mind.

In acquiring the ability to retain your studies, to plan lessons and your work and get them done on time, you will have learned one of the best promotion-tricks for later use in the service. Once in the air service of your selection, no matter what department, you will have plenty of "skull drill" to keep you on your mental toes. You will have to keep up with the latest aviation

gadgets, instruments, and procedures, of not only your own service but that of the enemy.

Most likely you will want to be a pilot, at the "top" of the pile. But is being a pilot the "top"? Let's take a long careful look and see.

Of all the hundreds of different kinds of work and skills one finds in the Naval Air Service or the Air Force, every one of them seems aimed at one eventual thing; getting bombs and bullets to the targets. That is true, and the pilots of the various types of combat aircraft seem to be the top dogs in the long chain of planning and preparation. Nevertheless, without the rest of the men turning the spokes of the air fighting services' many wheels, the pilots would have nothing to deliver and nothing to deliver it from.

A fighter pilot cannot go into combat without a good plane built by honest workmen, and that plane in perfect shape and combat condition. Without his guns, rockets, instruments, bombs and powerplant his ship is useless. Were it not for all his equipment, functioning perfectly, he might not be able to get to his objective to deliver his punch—and back again.

The pilot of the giant bomber, whether global atomic-bomb-delivering B-36 or Naval anti-submarine patrol bomber, depends not only upon all of the skills of the men behind him, but upon the men of his own crew . . . The bombardier who actually drops the bomb or depth charge . . . the navigator who actually directs the plane's course to reach that certain spot.

Also aboard is the flight engineer, top specialist in his line, who keeps the engines at peak performance so that the pilot and navigator of the sky giant may do their work well. Without adequate power from the engines the mission must fail, and without this power the radio and radar operators cannot do their work so vital to the mission. Communications (Continued on page 73)

AGE LIMITS: There are no minimum or maximum age limitations on Air Adventurers Club membership



MAIL TO: Air Adventurers, c/o Air Trails, 304 East 45th Street, New York 17, N. Y. Print all information required on the application; sign where indicated.

I hereby apply for membership in the Air Adventurers Club and promise to do everything in my power to uphold the principles of the organization and work for the advancement of American aviation. I enclose 25¢ in well wrapped coins for my credentials ☐; 50¢ for credentials and pin ☐—(indicate which).

(Name—print)

(Street address—print)

(City—print)

(Zone)

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(Sign here)

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POWER riding covers everything!

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Enclosed is 25 cents for colorful folder and complete information about the Harley-Davidson 125.

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HAS BEEN ADDED TO



PAA Load Events!

Win a handsome BULOVA WATCH!

● Clippers* fly on Bulova time... and so can *you*. Now you can win a dependable Bulova watch—and cash prizes, too—in Pan American's exciting pay load events.

PAA Load Events have become an outstanding free flight competition at many local and regional meets—a highlight at the Nationals. They provide model flying that brings out the basic purpose of flying itself: *to carry a pay load*. It's playing the game for "real."

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*Trade-Mark, Reg. U. S. Pat. Off.



The champs are going to be wearing Bulova watches.

PAN AMERICAN

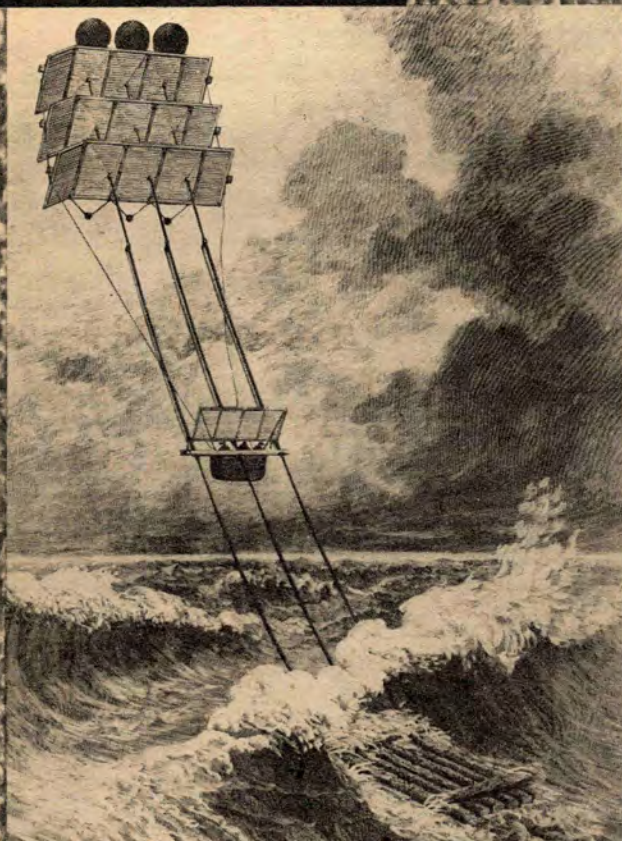
WORLD'S MOST EXPERIENCED AIRLINE

First Flying Saucers

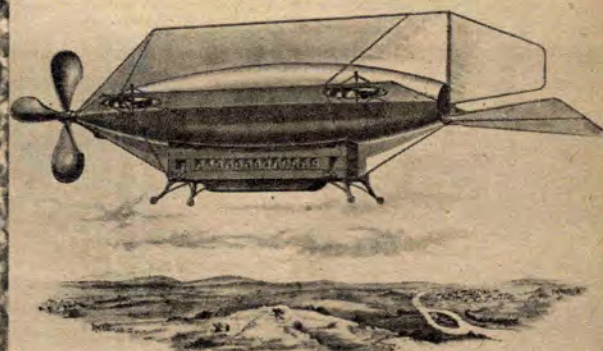


When J. Henry Smith drafted the original plans for this machine in 1892, little did he realize that it was to be the first in a spectacular series of flying saucer designs to palpitate the public. Prop was driven by electric motor fed power through wire cable connected to steam-engine-driven dynamo. Starched chute was there just in case.

The Good Old Days: 1885-1900



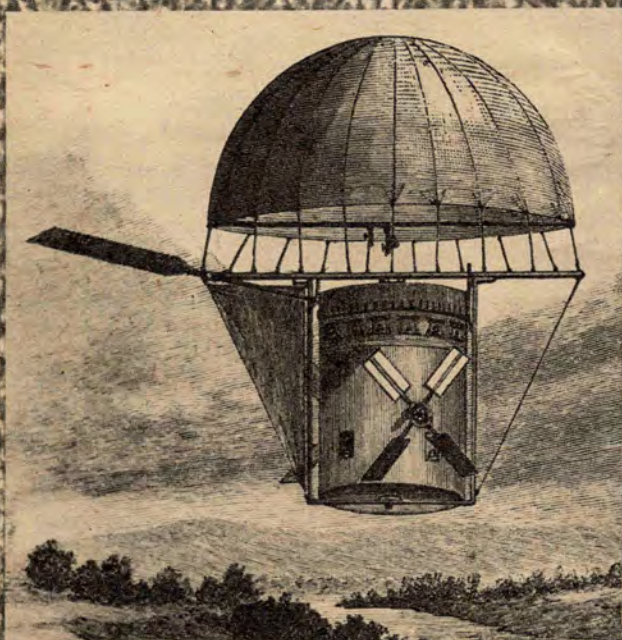
Inventor-Doctor David Thayer of Boston, Mass., styles this apparatus an "aerial railway." Its purpose is to tow vessels and vehicles by virtue of kite and balloon combination. Results not released to date.



E. J. Pennington of Mt. Carmel, Ill. in 1891 hit on the solution to make flying machine reliable: large sail on gas bag propelled ship if engine failed, props in wing for vertical ascent, descent. All-aluminum!



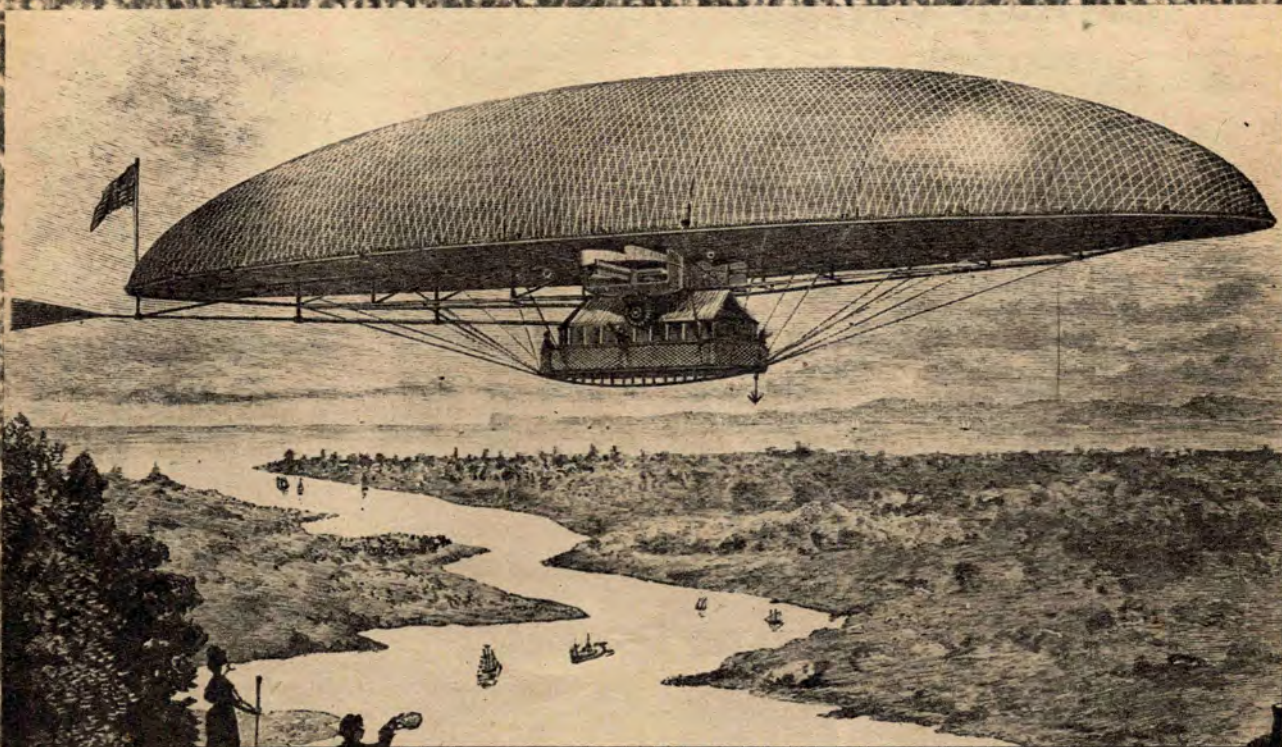
Cheap power and lack of fire danger was the goal of New York's A. J. Rieckert who in 1889 dreamed up this fantastic dirigible with flapping wings actuated by a two-man-power bicycle arrangement.



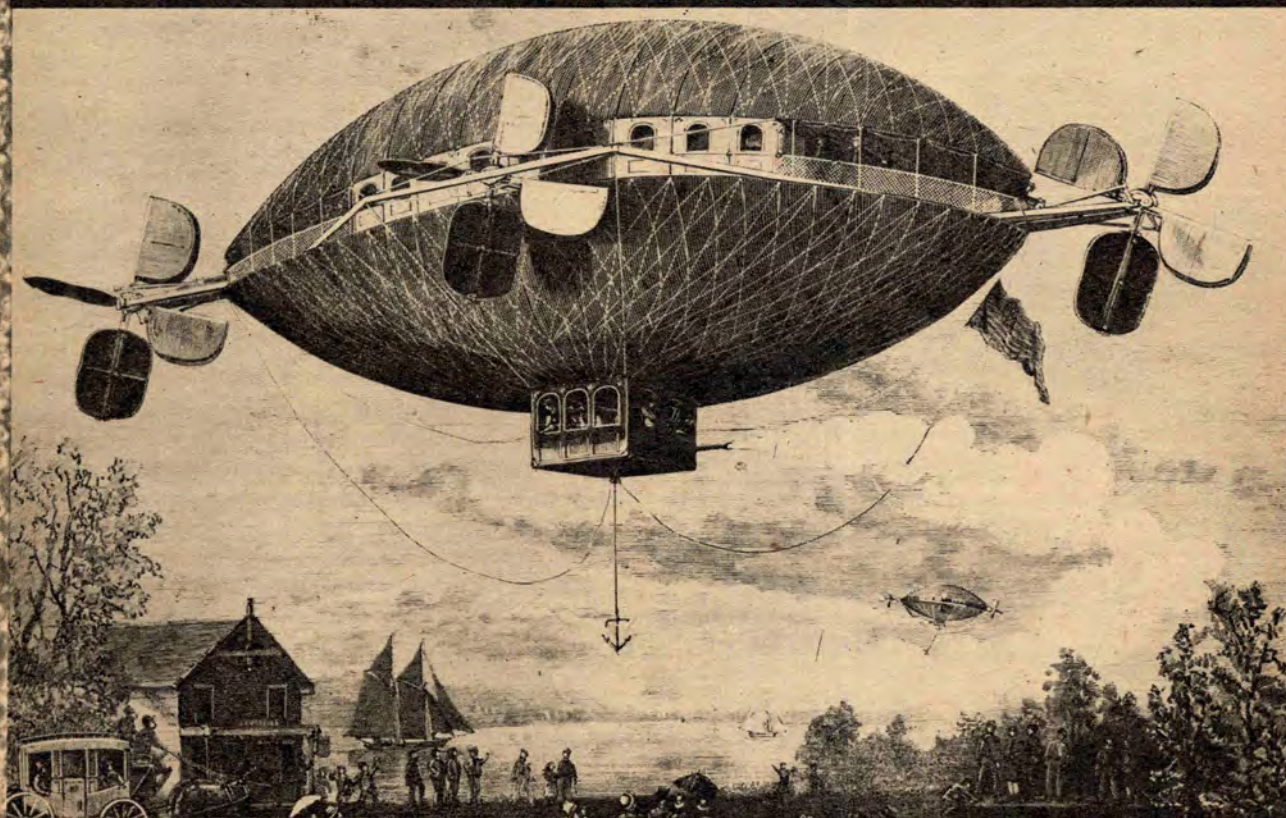
A real riddle is Aerial Ship patented by William N. Riddle of Crowley, Texas. Was to carry goods and passengers—an early attempt at canning, no doubt. Wind mills were to be connected to "suitable" motor.

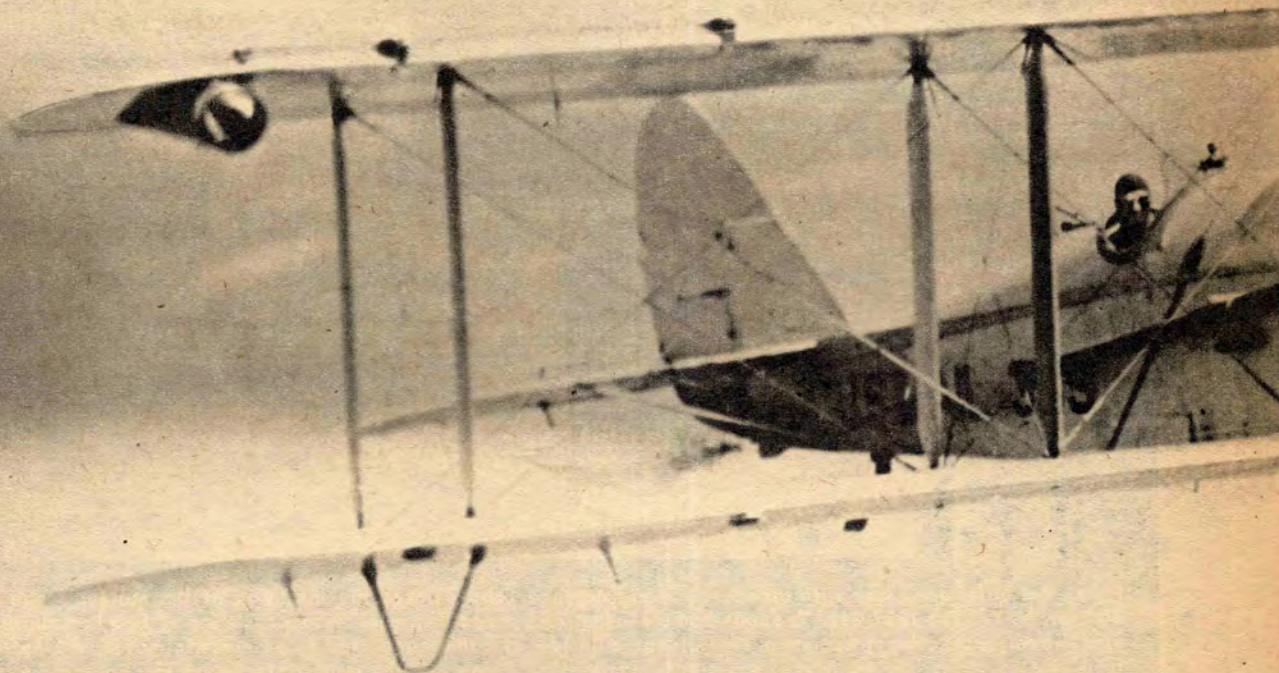


Muscle-powered flying machine by T. A. Stark of Ottawa, Ill. Had several advantages. Besides providing a pleasant medium for an aerial outing over the briny deep, was said to be an excellent body-builder.



Flying flat bottomed cigar with attached summer cottage (above) was the invention of Dr. Martin Braun of Cape Vincent, N. Y. The 1887 Graf Zeppelin had elevating and propelling mechanism consisting of two horizontally revolving wheels operating from main shaft located inside of cabin connected to an electric motor of 2 hp. Judging from size of gears, the hp figure was a mite optimistic. Below: Of the same vintage was the Spheroid dirigible by Moses C. Cole of Nicaragua. It consisted of two half spheres holding gas, with the passenger cabin sandwiched in between for warmth (no doubt), as it must have been breezy there due to proximity of propellers. In a less cozy position was crew and engine compartment suspended below bag. Engine shaft to props extended through bag.





The Open-Cockpit Era

By DONALD NAUGHTON
and HENRY SCHINDALL

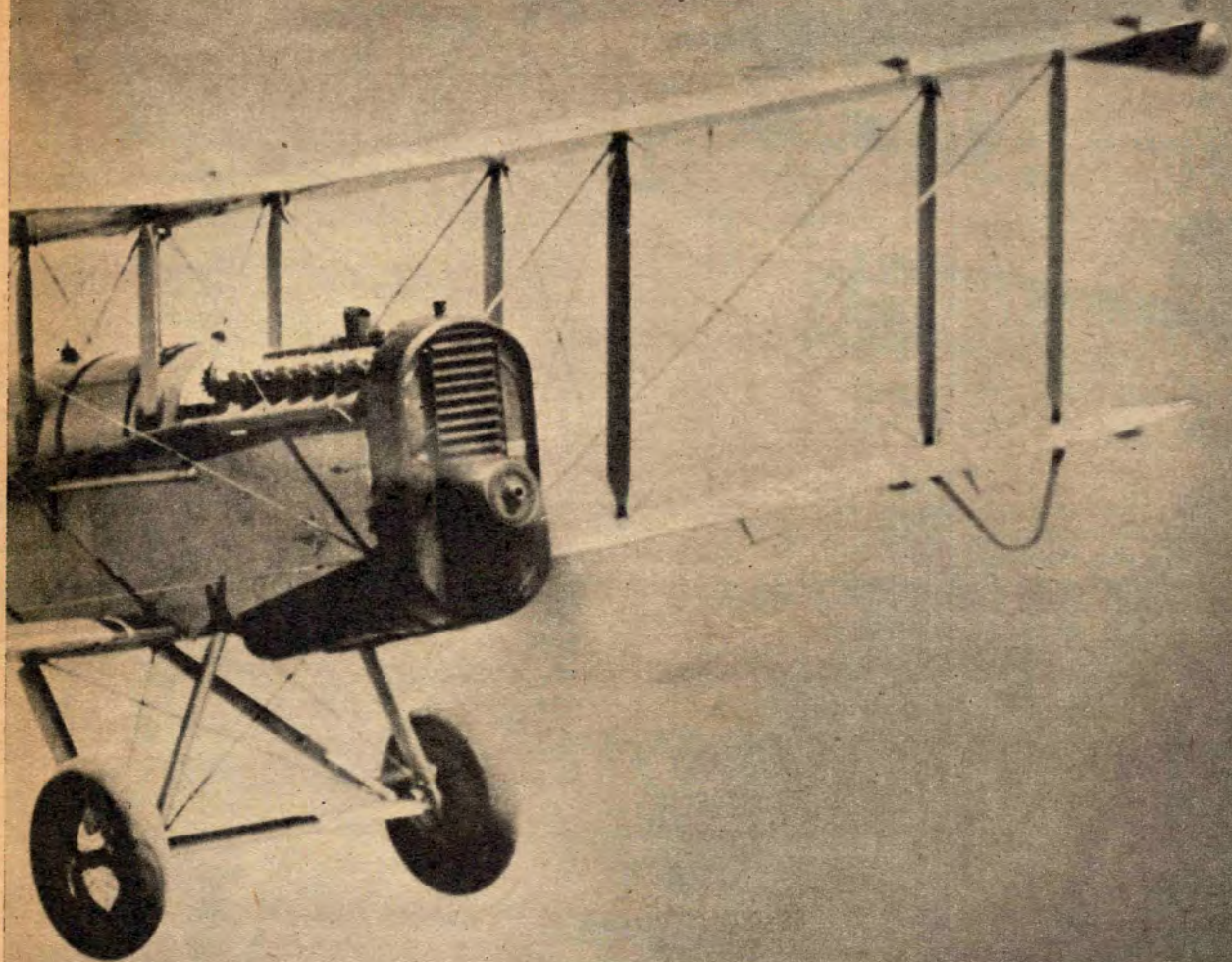
Get your helmet and goggles—we're going back
30 years for a real plane ride in a real crate

■ You stand leaning against the silvery fence of the huge airport. Behind you, streamlined buses roll, horns tooting; excited passengers mill about, calling goodbys; busy baggage handlers, sweating and muttering in the sun and bustle, lift suitcases on hand-trucks.

And in all the turmoil, you suddenly feel alone.

You eye the great planes of gleaming metal squatting huge and proud on the white concreté. You respect them, but somehow they leave you with an alien feeling. They're so smug, so sure of themselves. You follow their sisters in the busy skies, coming in and taking off with smooth precision, directed by an efficient staff high up in the control tower. It all seems queer to you, in a way. You are hovering around the fifty mark, and your flying days seem remote now, in some dim and unreal past.

You look down at the smooth-paved ground at your feet and don't see it. Your mind slides back, and you start to remember. A mounting volume of noise batters at your ears, and you know it for the blasting, bellowing Curtiss OX-5 engine pounding sound back to you in the open cockpit.



You hear again that wild scream the struts and wires shrill, an exultant, spine-tingling song, and the whistle of the slipstream past your goggles. You feel through your back the shivery vibrations of the ugly, beautiful old crate of wood, linen and fine steel wires, the only thing between you and the other world below. You thrust your head out of the cockpit, and the wind lashes your face like a mighty whip. You know that whip, and you laugh at it in elation and look down to the cluster of barn-like wooden hangars, in crazy pattern below, and the small, bleak, lean-looking field.

You reach even further back, and you see a boy, alone, hurrying across a wind-swept muddy field toward those barnlike hangars, stumbling, splashing in the puddles in his eagerness. The boy has a dream in his eyes, a young dream with wings attached. He lifts his mud-bedraggled earthbound boots more slowly, now; and then he stops to catch his breath. You know why, for the boy is you—*was* you, a different you.

Those old ramshackle hangars hold more mysteries and wonders for you than medieval castles. You

watch the grease-stained coveralled mechanics and pilots climbing over their planes, swinging rags and tools. Your eyes feast hungrily on those planes. One is a rebuilt war-time de Havilland-4; two are Curtiss Jennys; one a spanking new Lincoln-Standard; and off to the side, a trim, single-seater, an English-built S.E. 5, a war veteran, brash and cocky in its bright yellow civilian fabric. They are all beautiful, every one of them.

This October Saturday morn you stood before the smallest hangar, and watched a slender, ungainly, lanky chap setting a rusty, balky dolly next to the tail of a nearby plane. It was a real crate—a scarred old two-seater Jenny trainer, its soiled fabric covering ripped, the whole structure battered and wobbly. War-surplus, likely, one of those jobs a pilot could buy for \$200, and then rebuild.

An idea hit you, but you hesitated, just as the lanky chap glanced up and grinned at you, friendly. You went to him, your chest felt tight and fluttery. He didn't say anything, just nodded and motioned to the tailskid. You lent a hand then, helping him lift the tailskid onto the dolly. You felt, *I've started now.*



Little-known Curtiss Special evolved from the Curtiss Scout Triplane of World War I vintage.

I've done something. I'm on my way.

You both trundled that half-dead Jenny to the hangar, past the canvas curtains and into the dim interior. The smell of kerosene and dope, of old fabric, intermingling with that of gasoline and castor oil came strong to your nostrils; and nothing ever smelled sweeter. The chap nodded, and by way of thanks, he said, "My name's Slim."

You stood by him, awkwardly, watching him work over the plane, seeing his hands touch it skillfully, gently. And after awhile, you couldn't help it, you reached out and ran your hand over the ragged lower wing, slowly getting the feel. Slim noticed, and you pulled your hand back quickly. But he smiled, his eyes a-twinkle, and he said, "Say, hand me that wrench over there, will you?" That's what he said, but you sensed what he meant: *Okay, kid, I know how you feel. Want to stick around?*

Did you! You jumped to get the wrench—and knocked over a big can of paint, clumsily. You froze in terror. But it was an almost empty can, luckily. And Slim laughed. And you laughed, too, all of a sudden, loud, and Slim was your friend.

You tried to be helpful. You helped strip that old Curtiss JN-4 down to a trussed, wooden skeleton.

And then helped to haul off its sagging wings. You didn't talk much but after awhile Slim began to explain things to you—plain talk, nothing fancy, brief and to the point. You listened. You had never in all



Thomas-Morse Scout, World War I surplus plane, was popular for aerobatics at air shows.

your life listened so hard.

You had to leave finally, later, for you had a long hitch-hike back home. Your folks were swell, and they understood, but they were strict, too. Before you left, you said to Slim, hopefully, "Next Saturday,

Slim?" He grinned, and nodded.

Saturday again and the field was dry and windy. Patches of dust skidded across the hard-baked acres, coating planes and men alike with a fine grime. Near the hangar, you came up to Slim. He said hello and motioned toward three panting men cranking a Liberty-engined D.H.-4. You watched with him. The mighty, 400-horse-powered Liberty had won its reputation—some said famous, others, infamous—during the war.

The three men stood in line, hands clasped tightly, anchor man clutching the huge propeller. Then at the cry of "Contact!" all raced away, pulling the prop sharply through its arc. The temperamental engine was cold and balky, and wouldn't catch. Slim laughed as the men muttered, shook their heads, and tried again. This time the engine blasted into life with an ear-splitting roar that sent vibration tremors racing across the ground.

The pilot "revved" up the engine and the roar became thunder that set your ears to ringing; it was a thrilling sound. The blasting slip-

stream buffeted you, pasted your clothes to your body. For a moment you felt like a young god standing on the brink of creation.

The D.H. pilot snapped his goggles in place, signaled to a mechanic to pull the wheel-chocks free, mouthed an affectionate unprintable epithet at the onlookers, and started off. You watched that plane with Slim, watched it taxi along, watched every wobble, every turn. And when it raced along the ground and slipped into the air, and headed up, up, in the long, slanting triumphant climb, you and Slim turned to each other and smiled. It was a secret, understanding smile, that spoke clearly, though only another "aeronut" could hear what it said. It said, *There it is, the greatest thing in the world.*

Yes, Saturdays were *the* days; your entire life revolved around and was contained in these special days. You rebuilt that ugly crate of Slim's, reset each strut and wire. Under two pairs of eager hands the drab Jenny



Sikorsky S-32 built in 1926 had three open cockpits and a 400 hp Liberty powerplant.

brightened and took form. And all the time you were learning. You learned how to align the wings, join them properly; how to put on that new coat of fabric, dope and silver paint; how to tear down an old OX-5 engine to its component parts, replace worn pistons with eight smooth new ones. You washed a hundred parts of that engine in rich kerosene, digging your bare arms deep and loving it, and learning to know every part like your own name. You learned how to rebuild an airplane, piece by piece.

And through it all you waited for the Day, patiently, for you knew it would come. You knew your dream was slowly metamorphosing into reality.

It was bitter that winter. The ramshackle hangar was cold, drafty as an ancient barn. But you worked until feet and hands were numb and then hurried over with Slim to the "operations" shack. There you helped yourself to a mug of stinging hot coffee and warmed yourself by a cherry-red, pot-bellied stove. Standing there with the warmth seeping into your bones, you listened



American Eagle powered by 90 hp OX-5 engine was seen at airports from 1928 to late 30s.

You knew it suffered by comparison with some of the other ships. You knew that under its coat of silver and varnish it was old and patched. But a powerful warmth coursed through you as you stood there

those precious minutes, for gas and oil weren't free, even for two flight-crazy guys. Then came the black day. The day when all the glory of flight became as nothing and the beat of wings faded to a faint and distant whisper. You were standing in the lee of a hangar, out of a knifing wind, gazing aloft. Jeff Britt's cocky little Thomas-Morse was up there, edging its way across the vast blue dome. Jeff had a tussle, you thought, to battle those strong winds.

Suddenly your eyes widened and a sharp knife skinned your chest. A finger of red and yellow flame had darted out from the cowl around the Gnome rotary engine. In a split second, cowl and engine were a single ring of fire. Flame up there, whipped high in the wind! Your heart squeezed. You wanted to yell; you wanted to run; you wanted to do something. Jeff was up there, big, friendly Jeff. Jeff! You did nothing, just stood there in a frozen trance. You watched unbelieving while that stricken "Tommy" flashed earthward like a blazing comet. You could see Jeff trying to sideslip, desperately trying to kill the fire with the force of the wind.

And then a terrific explosion smashed at your ears. The flames had enveloped (Cont'd on page 62)



SE-5's excellent maneuverability at high altitude made it eminently suitable for skywriting.

to the conversation of flying men.

They were old-young veterans of war skies, for the most part. Big Jeff Britt, for instance, had flown with the French Flying Corps and had come home with seven German planes and a broad selection of French jokes to his credit. The talk reached every aspect of flying, from shaking a von Richthofen off your tail to nursing a mailplane over the Alleghenies; from the relative merits of a Gnome rotary engine in a Thomas-Morse (which Jeff vociferously defended, though some thought it treacherous) to the tricks of handling a twin-engined plane.

You didn't realize it, but this was your classroom. Here you picked up fistfuls of information that a college would have labeled "theory of flight," but which you called pilot-talk.

How proud that moment when finally your refurbished craft squatted in glistening pride on the apron, its engine warming up with a happy rumbling, ready for its test hop!

watching: You had poured a lot of sweat into that Jenny, you and Slim had given it life; it was your baby.

Slim took you up that very day for your first lesson. And then every Saturday thereafter. Fifteen minutes now, a half hour then: you nursed



Curtiss Oriole with 160 hp C-6 engine used by Curtiss Flying Service for passenger hopping.

By DOUGLAS ROLFE

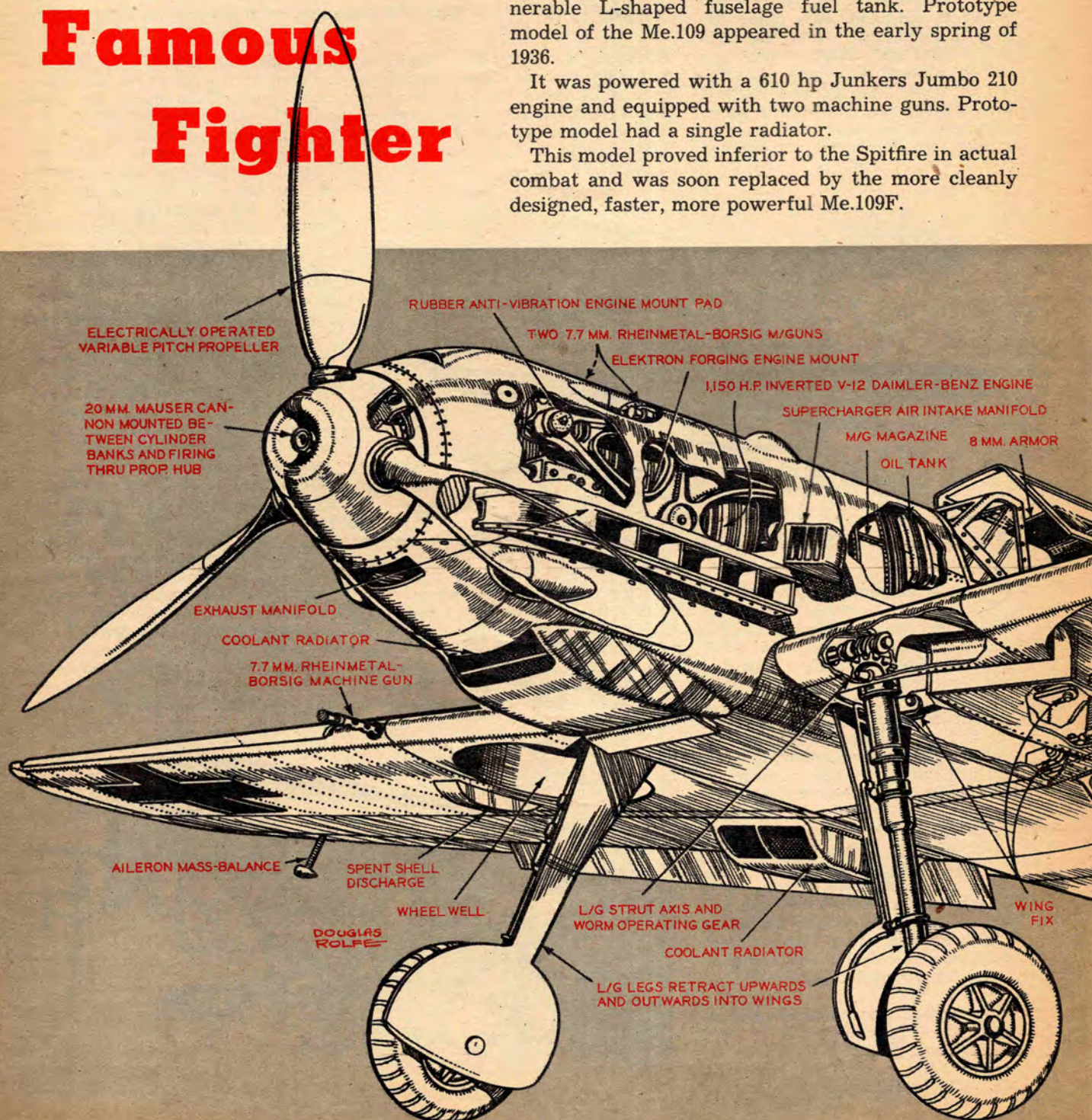
Germany's Most Famous Fighter

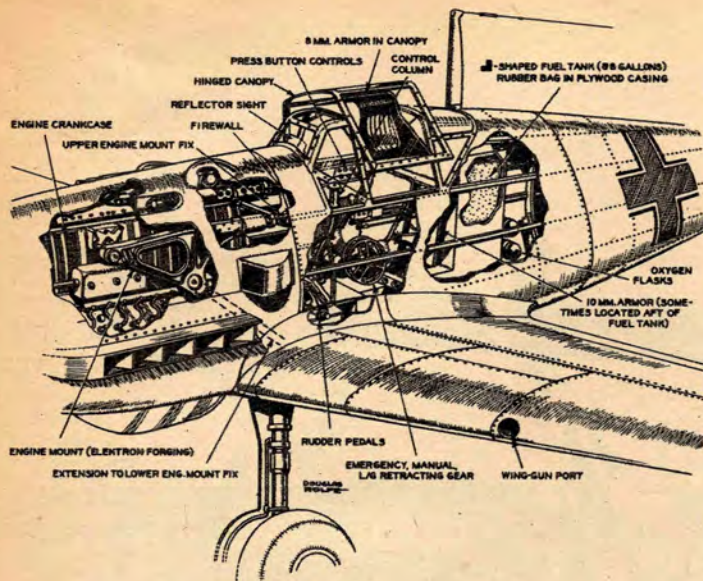
The Battle of Britain Messerschmitt with 1,150 hp Daimler-Benz DB. 601 engine. A modified version of the fighter with which Germany entered the war, the 109E was the top Luftwaffe fighter opposed to the Spitfire and the Hurricane during famous Battle of Britain. Top speed was about 354 mph and armament varied from one cannon and two machine guns to the arrangement shown in this drawing.

The 109E was first model to introduce defensive armor, previously lacking. Disposition of armor varied—some models having armor behind the vulnerable L-shaped fuselage fuel tank. Prototype model of the Me.109 appeared in the early spring of 1936.

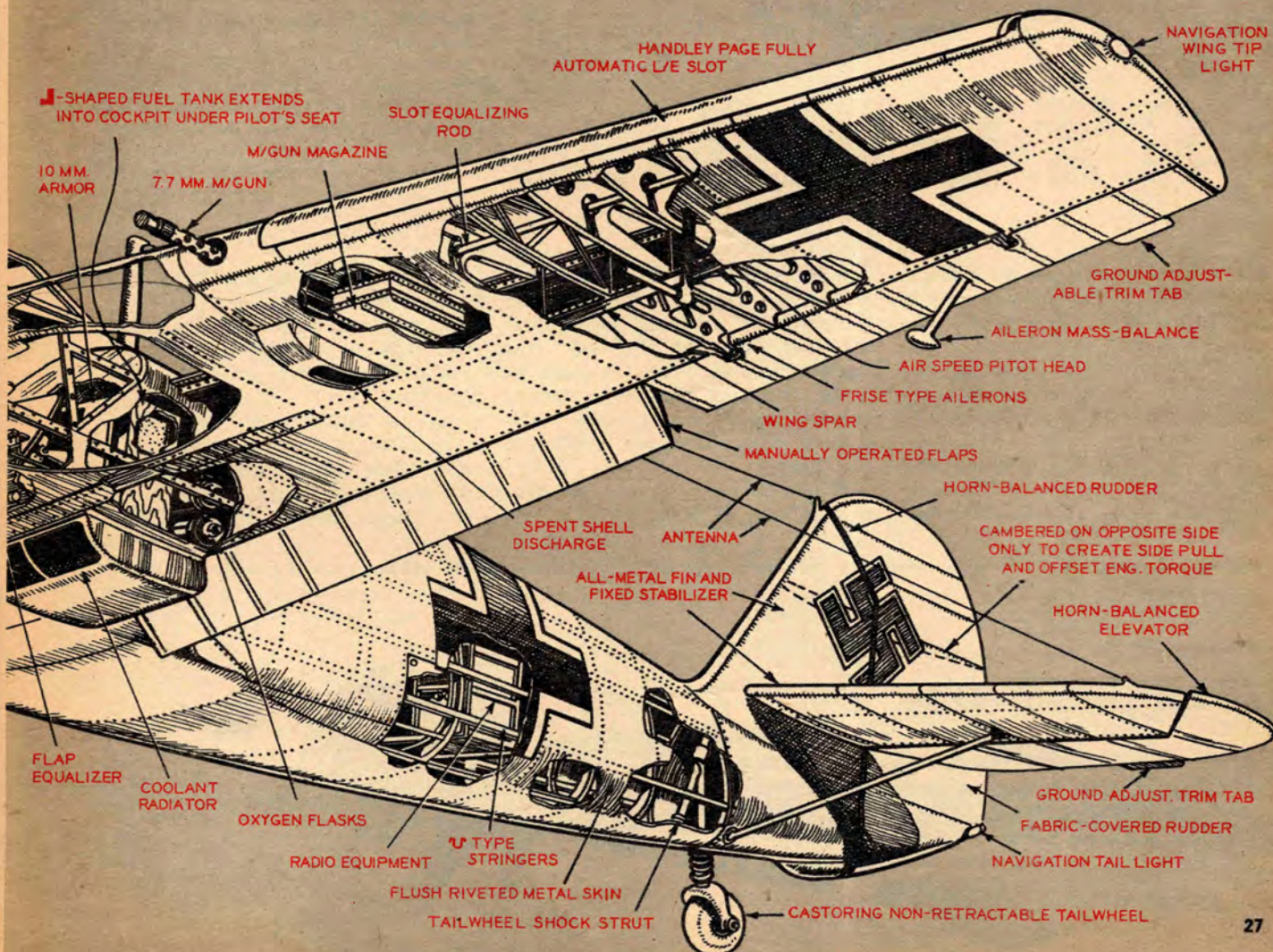
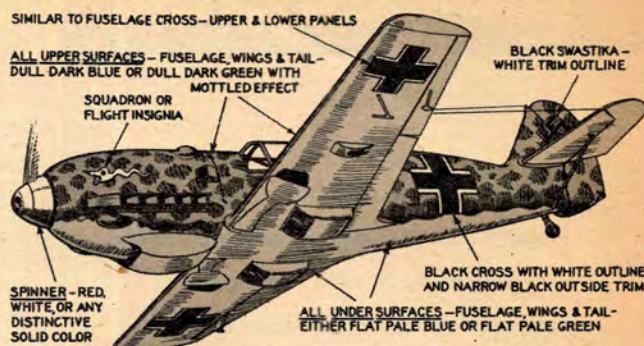
It was powered with a 610 hp Junkers Jumbo 210 engine and equipped with two machine guns. Prototype model had a single radiator.

This model proved inferior to the Spitfire in actual combat and was soon replaced by the more cleanly designed, faster, more powerful Me.109F.

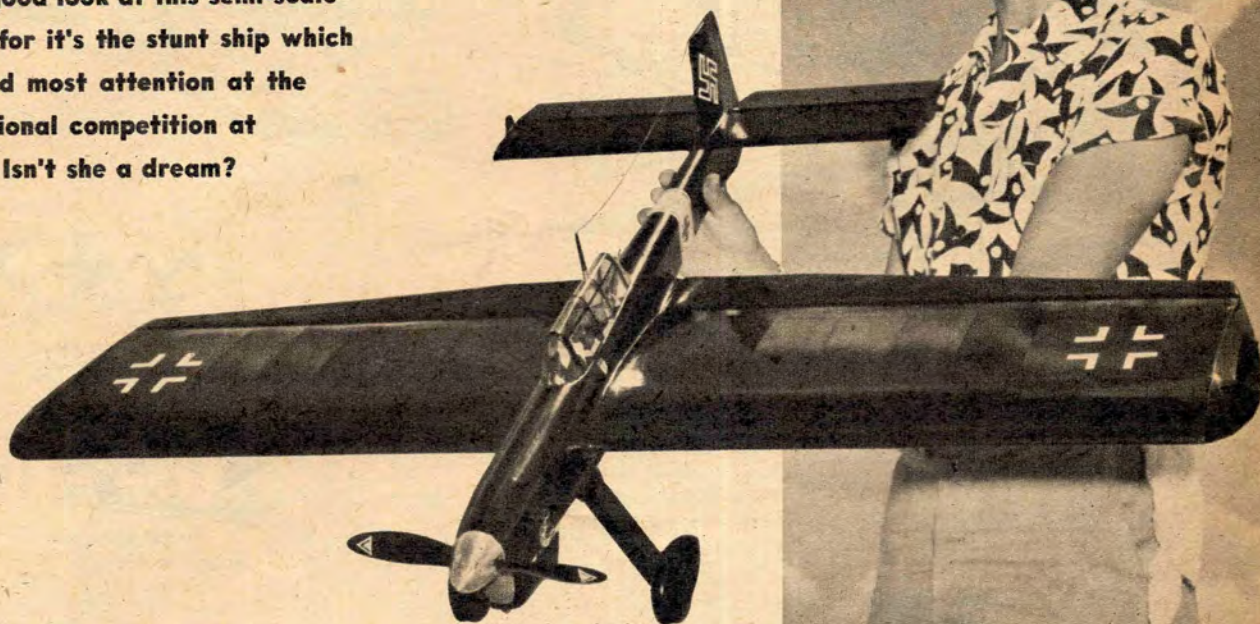




Cockpit details, Me.109E. Source for cutaway and this cockpit drawing was captured Me.109. (A) Basic color scheme of Me.109 in 1940. Illustrated (B) are variations in Luftwaffe cross insignia and typical flight and squadron emblems. Cross with narrow white band and thin black edging (center) gave way to cross with wide white band and heavy black edging (lower) early in the course of the hostilities.



Take a good look at this semi-scale beauty, for it's the stunt ship which attracted most attention at the last National competition at Dallas. Isn't she a dream?



Still's Slick Stunt "STUKA"

Don Still and his beautiful black semi-scale Stuka stunt ship. Don and his entry turned in one of the top stunting performances at the big National meet in Dallas. Model was awarded highest appearance points of the competition. Don's busy at the Happy Hobby Haven in Beaumont, Texas, when he isn't off to some contest flying his models.

■ It's spring and time for college final exams. A graduating senior goes to his desk, takes pencil and paper in hand, and hurriedly begins . . . to sketch plans for the approaching model contest season. This was how the *Stuka* stunt ship came into being.

After having accumulated the highest score in precision acrobatics at the '49 Nationals in

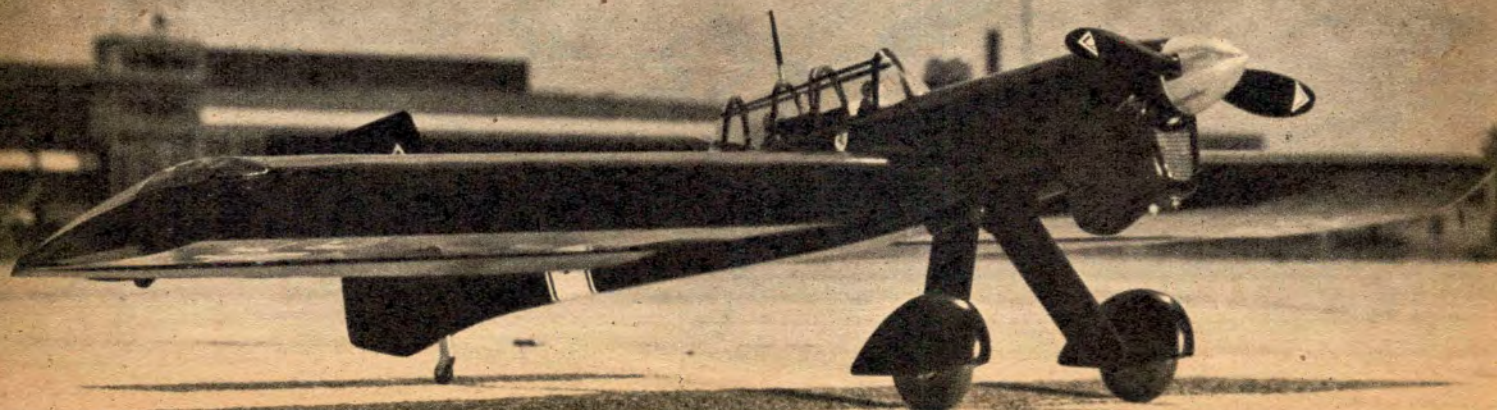
Olathe, Kansas, then the following year at the Dallas Nationals being replaced for the first position by the last flight of the day, this stunter had some observations to make. Stunting had been making changes and it wasn't in the maneuvers—appearance was becoming the thing.

The ship used at the '49 Nationals was a large-area, short-

coupled Atwood .60 job. With only a few minor changes, the same ship was used at the '50 Nationals. But this model lacked the now-essential property—realistic proportions.

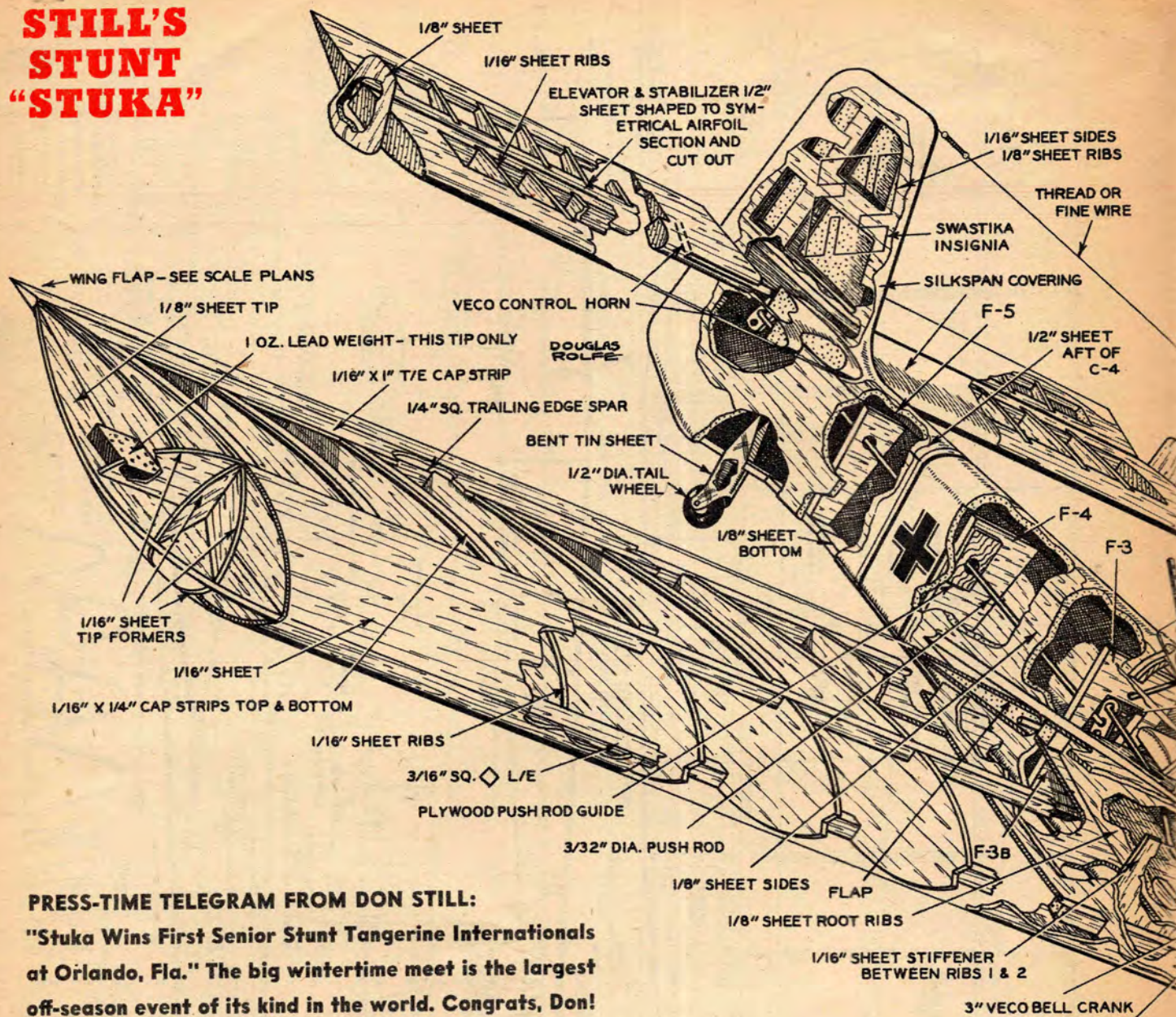
Seeing the need for this different type of stunt ship, I decided on a semi-scale warplane. Searching for a plane with good dimensions, sleek lines, easy cowling, and with

All black and more than a yard wide! Among our "repeatedly requested" jobs this one by Don Still ranks high. For motors .19 to .35.





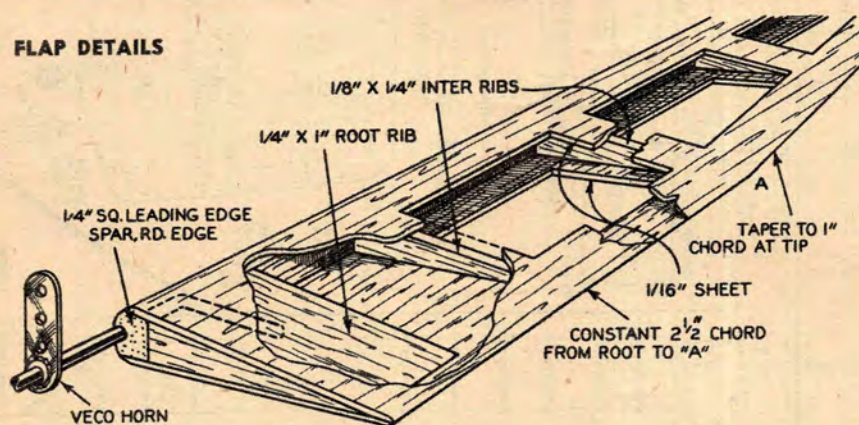
STILL'S STUNT "STUKA"



PRESS-TIME TELEGRAM FROM DON STILL:

"Stuka Wins First Senior Stunt Tangerine Internationals at Orlando, Fla." The big wintertime meet is the largest off-season event of its kind in the world. Congrats, Don!

FLAP DETAILS



AIR TRAILS

semi-box fuselage, I chanced on the German Junkers Ju. 87B Stuka which filled the bill.

Some noticeable changes were made, namely the inverted gull wing became a straight wing with a wider chord. Otherwise the cowl, landing gear, tail surfaces, and fuselage remained approximate scale.

This ship was awarded the highest appearance points at the '51 Nats and took second place in the Senior division.

The *Stuka* was designed for medium-sized maneuvers and cannot be made to do tight, un-uniform flip-flops (a fault with most flap ships). Weight should be kept around two pounds, my ship weighing 30 ounces.

Because this ship is designed for the more experienced model builder, conventional construction advice will be omitted. Attention will be placed on unusual details. Construction was begun on the wing. It is of the popular "D" tube type. However, it was found construction time is cut considerably, with no strength sacrifice, by using two 3/16" square main spars instead of the 1/16" sheet spar. Wing alignment is also easier.

Instead of the leading and trailing edge sheeting joining at the wing's center, a full-length 36"x2½"x1/16" sheet is used with a shorted 2½"x1/16" sheet planking the remainder of the wing's length. Top and bottom full-length sheets are alternated, as are leading and trailing edge sheets. This arrangement distributes your weak joints evenly and toward the tips of the wing.

The flap is two 1/16" sheets with center holes cut out for lightness. Glue the leading edges over a ¼" square spar, then pull together and glue at trailing edge over ⅛" sheet ribs. "U" shaped metal hinges join the flap to the wing. The entire wing and flaps are covered wet with heavy Silkspar and doped 6 to 8 coats with medium-thinned dope before installing in fuselage. Flaps are hinged permanently after wing is installed.

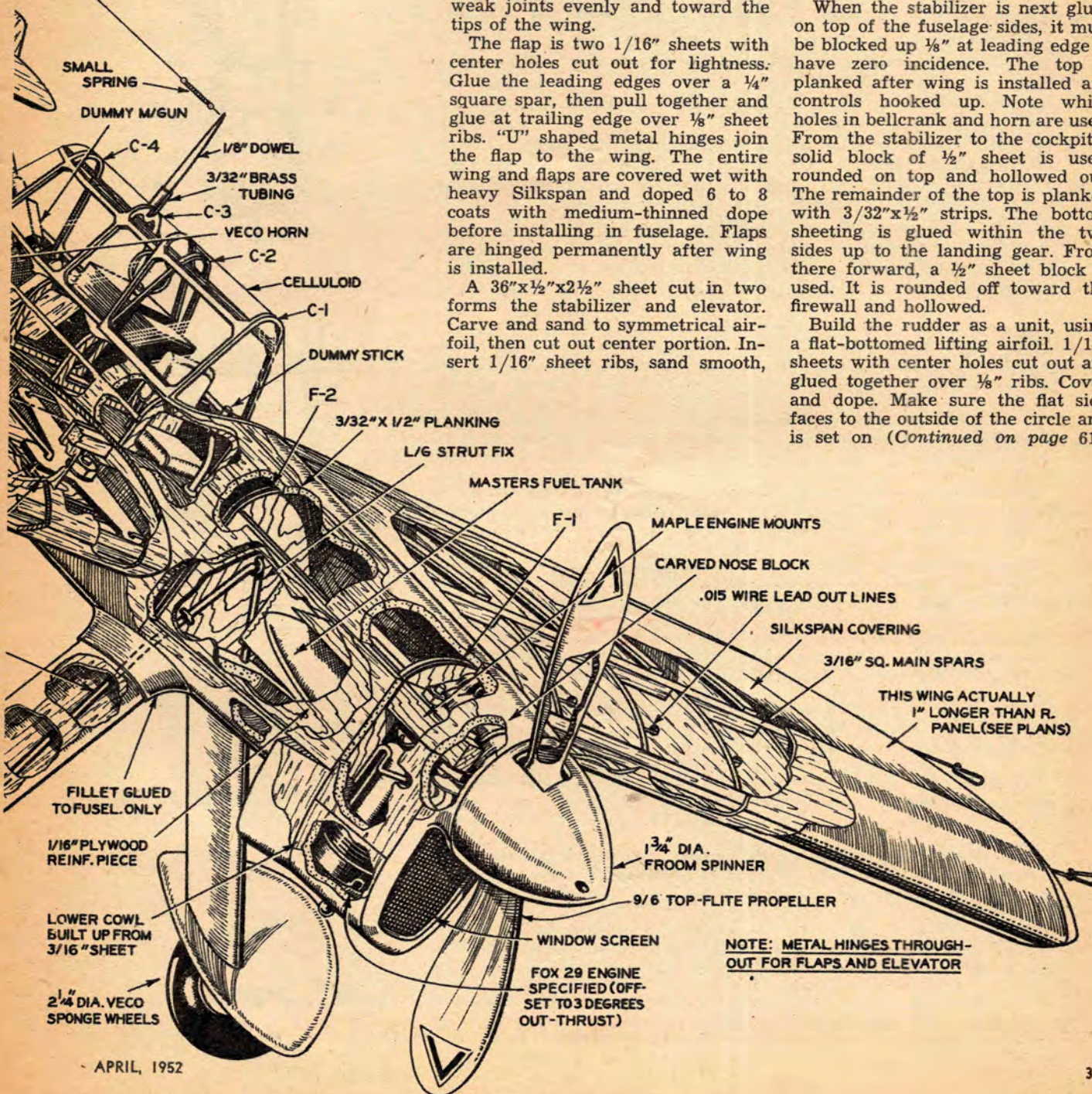
A 36"x½"x2½" sheet cut in two forms the stabilizer and elevator. Carve and sand to symmetrical airfoil, then cut out center portion. Insert 1/16" sheet ribs, sand smooth,

cover with Silkspar and dope, add horn and join with metal hinges.

Fuselage construction is started around tank. Reinforcements of 1/16" plywood are added to the ⅛" sheet sides. Particular attention must be drawn to motor mounts. They are installed at a slight angle to correspond with the angular setting of the wing and stabilizer, thus putting the stabilizer out of the wing turbulence. The two sides are glued over firewall and landing gear bulkheads, with tank in place. Holes are drilled for installing landing gear before bulkhead is glued in. Landing gear is added later, before top and bottom planking. Now glue fuselage tail together and add bulkheads, giving the fuselage a "V" shape toward the tail.

When the stabilizer is next glued on top of the fuselage sides, it must be blocked up ⅛" at leading edge to have zero incidence. The top is planked after wing is installed and controls hooked up. Note which holes in bellcrank and horn are used. From the stabilizer to the cockpit a solid block of ½" sheet is used, rounded on top and hollowed out. The remainder of the top is planked with 3/32"x½" strips. The bottom sheeting is glued within the two sides up to the landing gear. From there forward, a ½" sheet block is used. It is rounded off toward the firewall and hollowed.

Build the rudder as a unit, using a flat-bottomed lifting airfoil. 1/16" sheets with center holes cut out are glued together over ⅛" ribs. Cover and dope. Make sure the flat side faces to the outside of the circle and is set on (Continued on page 61)



NOTE: METAL HINGES THROUGH-OUT FOR FLAPS AND ELEVATOR

Model Builders are INVENTORS, Too!

The ingenuity of the aeromodeler is evident from great number of patents which have been issued to him by U. S. Patent Office

By RAY RUSHER

■ Out of the many United States patents that were issued during the past few years, well over 100 have had to do with model airplanes, race cars and engines, and with a variety of accessories for the model builder. Possibly one of those gadgets you have worked out for your modelplane is an invention. If so, a patent can be issued to you. Inventors need not be "of age"; if you have really invented something, you are entitled to a patent.

If the Patent Office considers any device you have worked out as being an invention, it will grant you a patent, the life of which is seventeen years and conveys the exclusive right to make, use and sell the invention claimed in the patent. Full information about the procedure can be had by addressing the Commissioner of Patents, Washington 25, D.C.

* The main prerequisite to securing a patent is the preparation and filing of a patent application. An application consists of drawings and a description of the invention together with "claims" you make for it.

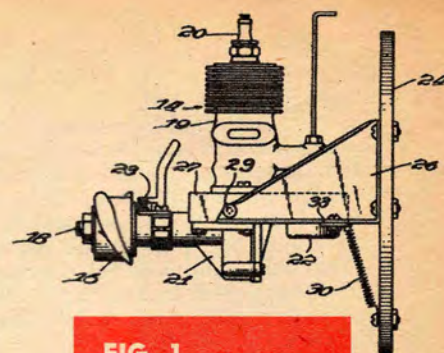


FIG. 1

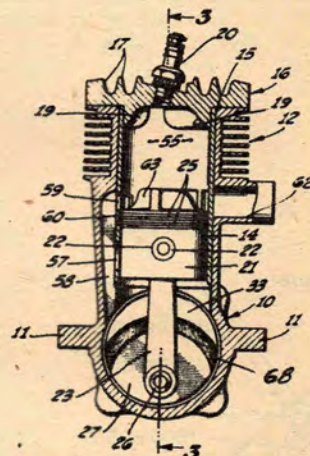


FIG. 2

Fig. 1. One of Carl Goldberg's engine accessories consisted of an engine mounting to prevent broken props. Engine bearings 27 are pivoted at 29 to mounting brackets 26 and are held against stops 33 by springs 30. Most all patent drawings look wild 'n' weird.

Fig. 2. Damon L. McCoy made several improvements on the conventional 2-cycle engine to increase efficiency. Among other features, the shapes of transfer ports 58, baffle 63 on the piston and cylinder head 16 were improved, and the spark plug was set at an angle.

Fig. 3. Charles Brebeck patented stepped piston to reduce mixing fresh gas with exhaust gas. Fresh gas coming in through ports 9 hits step and is deflected upwardly into cylinder while exhaust gas is expelled through ports 6 in opposite side. He runs "OK" motor works.

Fig. 4. Randall E. Froom holds patents on prop spinners. This one solves the problem of mounting spinner back plate 3, the prop hub 2 and spinner 11 on crankshaft 1. Rod 6 screws into nut 5 for the back plate and prop. Head 16 on rod holds the spinner in position.

Fig. 5. T. R. (Ray) Arden holds many inventions in the model field. This is the Atom engine with adjustable fuel supply. Arden also received patents for an adjustable compression ratio in the old Atom powerplant. A lever was used to raise or lower the cylinder head.

Fig. 6. This is it! Patent #2,292,416 dated Aug. 11, 1942—"controlled captive type toy airplane." Jim Walker filed for this in December, 1940. Note that he also covered the engine control. Authorities consider this the greatest patent in modelplane field.

Fig. 7. We all know that the majority of modelplane engines now use a glow plug rather than spark ignition. Well, here's the beginning of that trend: Kenneth Howie filed an application for glow plug ignition in 1937 and received his patent the following year.

Fig. 8. Here is the unique "control for model airplanes" as patented by Victor Stanzel and known back then in '39 as "G-line" flying. One line utilized. Mr. Stanzel also holds other patents on model plane items as do many of the other inventor-modelers mentioned.

Fig. 9. Kenneth A. Willard's invention for the control of the model elevator was a rubber band 24 for "down" and a control wire 26 for "up" which passes through eyelet 28 to handle from which second line is permanently anchored at wing tip at 27. Tail pivots.

Fig. 10. Most users of spark plug ignition are familiar with the ignition timer patented by Walter C. Austin and Webster Hill. Operates by air compressed by a spring so travel of piston is slowed depending on rapidity with which air is let out of cylinder by the valve.

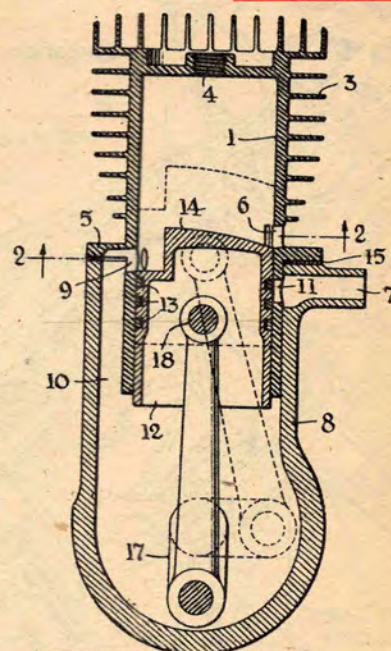


FIG. 3

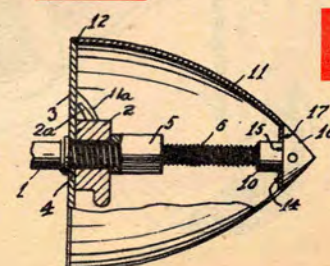


FIG. 4

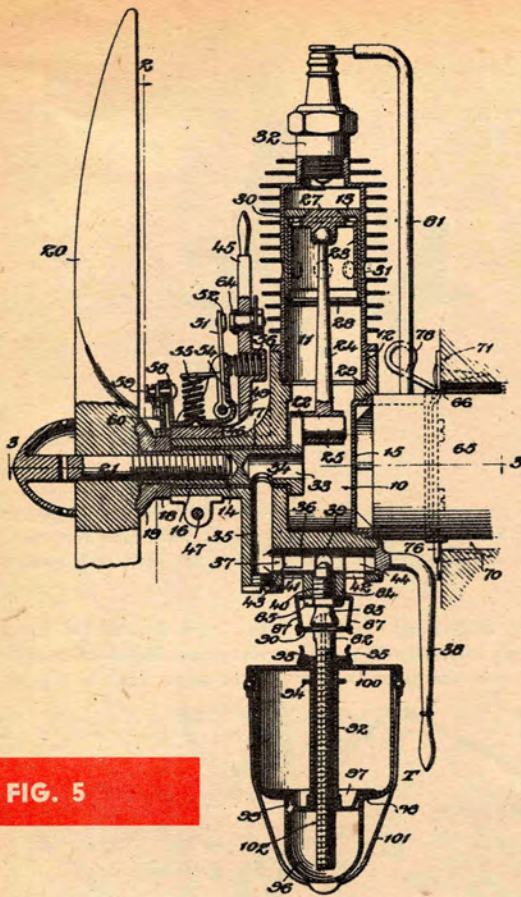


FIG. 5

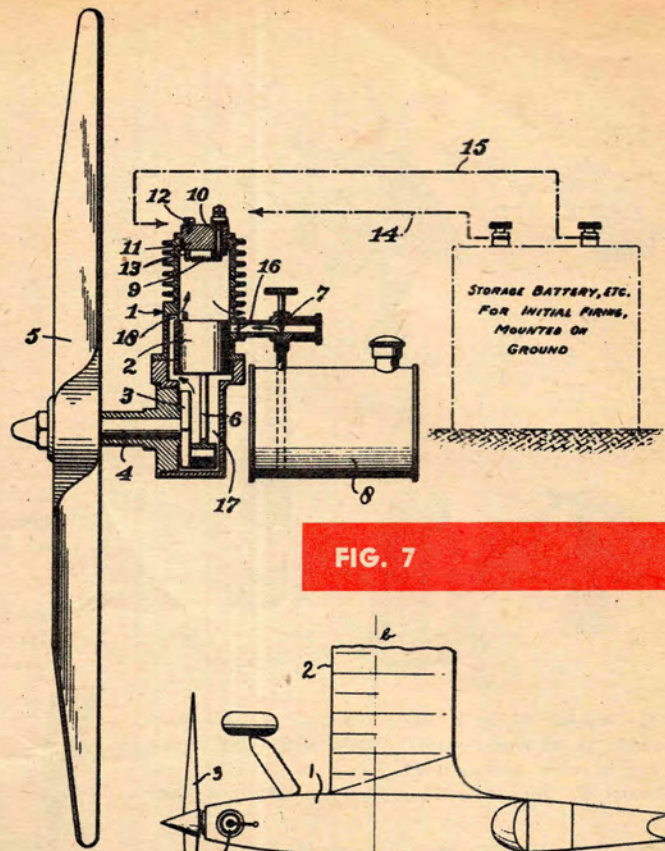
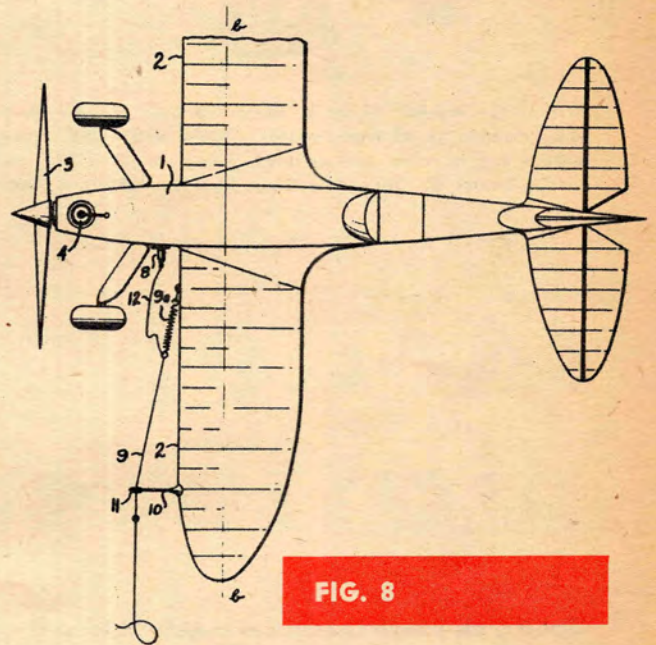


FIG. 7





Best of the Month! Stuart L. Richmond built this AT Fleet which cleaned up all those awards. Trophy with figure represents a 2nd in *stunt*. Silk covered; flying weight is 22.5 oz. Motor, Orwick .29. Stu's at Georgia Tech, a mighty fine flyer.

model matters

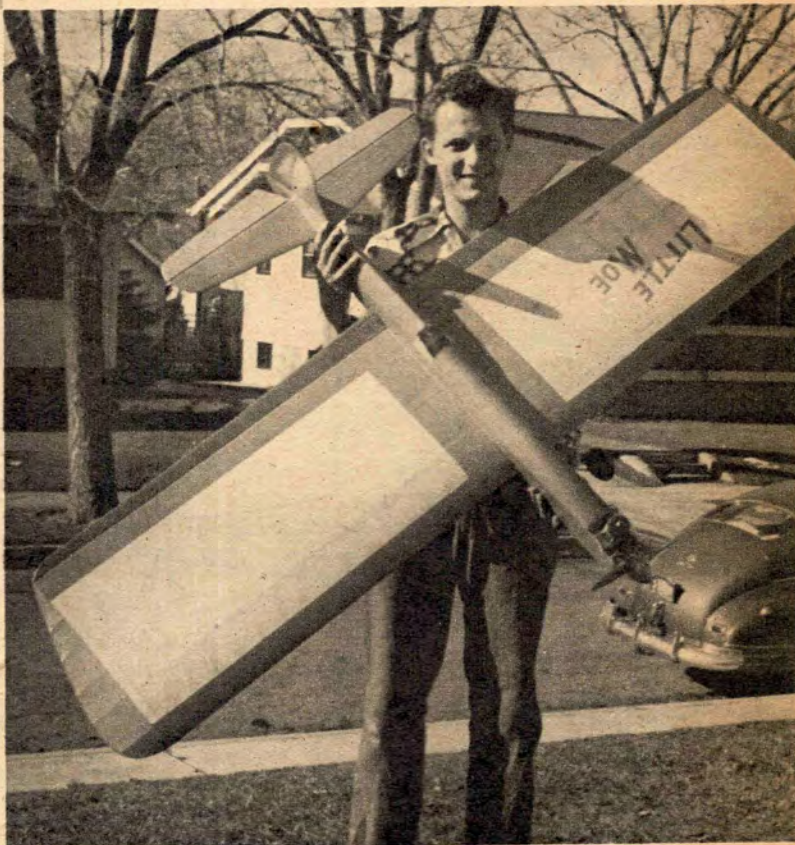
Calling all photo fan-model bugs! "AT" will pay \$5 for each air-model pix published sent exclusively to this magazine. Shoot 'em in!

Long Island, N. Y., Gas Monkeys club photographed at their meeting place: P.S. #138, Rosedale, L. I. Ernie Roff, pres., at extreme right, rear row. GM boys are considered one of oldest, most active clubs in East—quoting John Marotta, official photog.



Do you see wot we see, chum? Seven ft. B-17 flies at England's National Air Races. Four E.D. diesels. Dural main spar, telescopic oleo legs on undercarriage. Hits 60 mph; can fly on 2 motors.

Paul Sanaras of Denver, Colo., calls this stunt ship of his "Little Moe"; it looks more like "Big Bo" to us! Paul failed to provide power plant and size specs, but you gotta admit she's a big 'un.



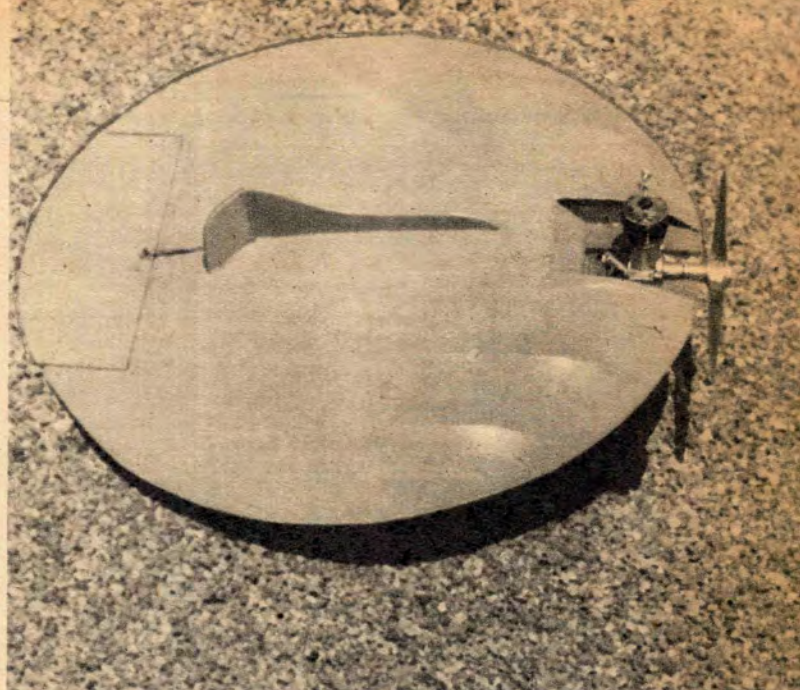
Now you've seen everything! English 12 ft. model Brabazon has 4 Elfin diesels. Retracting wheels with brakes to control taxiing.



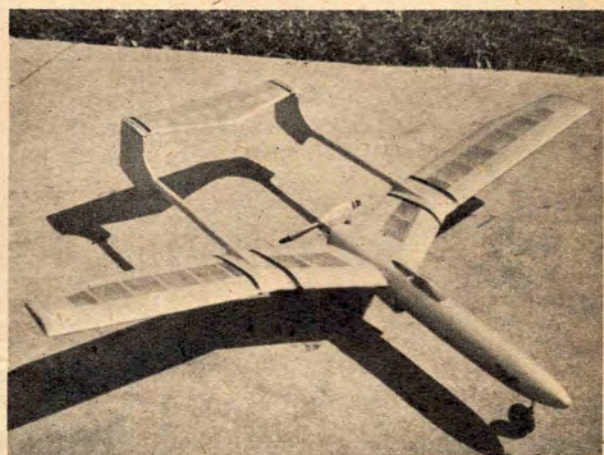
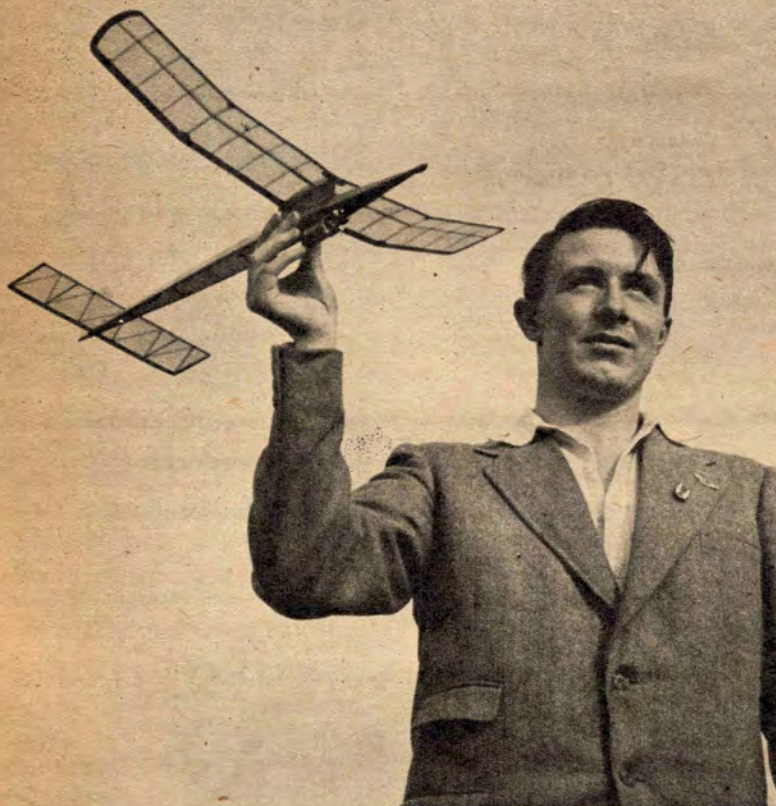


Original twin half-A for team racing! By Larry Hayward stationed at Naval Air Station, Norfolk, Va. Baby Macs supply the power. Larry says his base is about to break forth with mucho T/R activity.

International Jetex winner W. H. Houghton of North Wales with Jetex 100 entry. Original design features MVA 123 wing section, 84 sq. in wing area, weight less motor .75 oz. Triangular body.



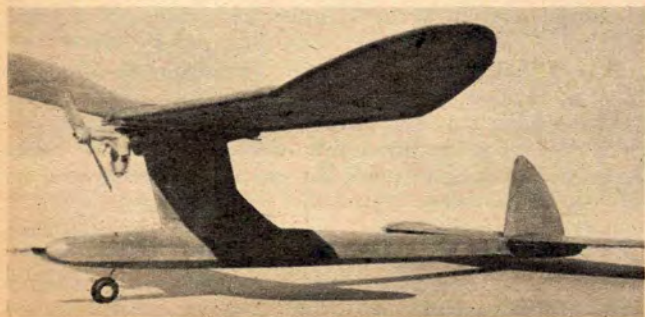
Latest flying saucer by Claud E. Adams, Beacon, N. Y. About 23 in. across, 1.5 in. thick airfoil tapers to 1/16 in. t.e. Forster .29, 9/6 Scamper plastic prop. Has flown successfully at many meets. Capable of all stunts, can stop in mid-air.



Ain't she sweet! Bill Fileccia of Detroit is responsible for this beautiful pusher—his 5th! A free flight, she uses Cub. .049. Very stable; light metallic blue body with yellow wings.

Recognize this? It's a modified Fireball! Fox .35 is mounted under cockpit, sports extension shaft. Ducts under fuselage cool motor. Air continues out jet style opening in rear. Does 75 mph, handles well. Owner Don Titus of Boston Balsa Bees holds.

L. J. Lapka, Cleveland, tried 3 times to get pix in MM—finally made it. Original F/F, 36 in., Wasp, tested before "Do'No" appeared in AT.





Look at 'em go!
-the Record-Smashing,
Meet Winning...

Golden Rods

By PAT MASSEY and CARL C. HALL

The hottest team in American speed circles reveals design secrets built into winning A-B-C-D jobs

The Team: These ships, a bit more complicated than the usual speed model, are the result of many designs and some 20 to 30 airplanes that have been built and tested by us during the past three years.

As for our personal histories, they are remarkably parallel.

Massey: Carl "Babe" Hall (right, above) was born in Garber, Okla., on September 18, 1920, and I was born in Hillsboro, Texas, on September 11, 1920. Hall moved to Texas in 1927 and I came to Pampa, Texas, in 1927.

We met and started building models (rubber and gas powered free-flight) in 1936. We continued until 1943 when Hall went into the Air Forces and spent 33 months overseas. Meanwhile, I was working at defense work. In 1945, Hall returned and we began building control line models.

Hall: After watching a contest, we took up speed flying in 1947. During the seasons of 1948 and 1949 we flew in many contests, generally placing first and second.

In the fall of 1949, we decided that "he who travels alone" does not necessarily travel the fastest, so we quit battling each other and ganged up on everyone else. This seemed to pay off.

After building a new "D" job we went to a meet

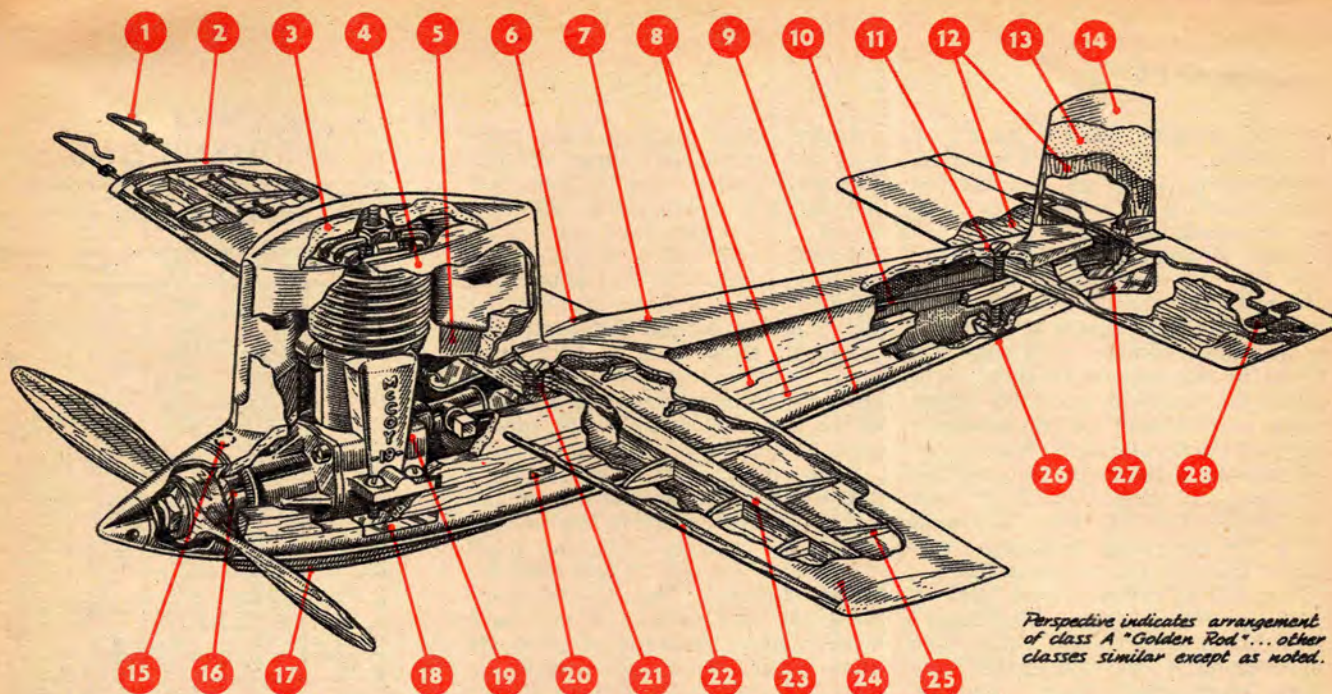
at Wichita Falls, Texas, and took first in "D" with a speed of 150.00 miles per hour.

Massey: In 1950, besides winning many local meets, we took first in Class A, second in Class C, and fifth in Class D at the Nationals.

In 1951 we had better luck at the Nationals. This time we captured both Class A and Class D, winning the Air Trails perpetual trophy with our Class D ship. We consider ourselves very lucky indeed.

The Team: Now for the airplanes. These ships are not as efficient as they could be made to be. Instead they were designed to be very stable. They have to be if you are to fly them in this part of the country. Generally the wind is from 15 to 30 miles per hour and a calm day is the exception rather than the rule. We can truthfully say that anyone who can fly a control line ship will have no trouble flying them.

This design was first used in 1948. Since then it has been developed into the latest version that you see here. Rudders are used to place the center of lateral area in the correct position. This helps prevent the *yaw* which causes the ship to climb when it is on the upwind side and dive on the downwind side. This *yaw* also affects the fuel mixture, making the engine lean on the upwind side and rich on the downwind side.



1. .031 lead-out wires with special clips. 2. Hard balsa wing tips. 3. Balsa cowl top. 4. Plywood or "speed-skin" cowl sides. 5. Balsa cowl baffling. 6. Small fillets. 7. Hollowed basswood top shell. 8. Shaped maple double crutches. 9. Hollowed basswood lower shell. 10. Control

pushrod. 11. Rear tie-down bolt. 12. Plywood tail surfaces. 13. Primer-surfacer filler coats. 14. Hot fuel resistant finish. 15. Front tie-down bolt on Class B, C, D only. 16. $\frac{1}{8}$ " metal spacer, Class A only. 17. Aluminum landing skid. 18. Aluminum plate. 19. McCoy Red Head racing engine.

20. Inset metal plate for tie-down bolts. 21. Main tie-down bolts. 22. Hardwood leading edge strips. 23. Tapered maple wing spar. 24. Hard balsa sheet wing covering. 25. Hard sheet balsa ribs. 26. Inset alum. plate for tie-down bolt. 27. Plexiglas skid. 28. Fabric elevator hinges.

The "square" back on the ship is used to give plenty of room inside for tank, bellcrank, and so on. Nothing is more discouraging than to build a speed ship and not have enough room inside for the essentials.

When building a speedster we believe that the builder should take his time and do a good job. We take pride in our models and believe that doing a good job not only lengthens the life of the model but makes it fly faster. Besides, whether it flies faster or not, a slick ship scares the bejaspers out of the competition.

We will start with the fuselage. First cut out the crutches, using the proper thickness. Then cut the top and bottom sections of the fuselage from basswood or pine. Tack the sections and crutches together with glue and let dry. This fuselage cannot be lathe-turned but must be carved. We find an ordinary block plane very useful for this. Carve the glued-up sections to the cross sections shown, using cardboard or thin plywood templates to check the cross sections frequently.

When the outside is carved and sanded to the sections shown, split the top and bottom and the crutches apart. Lay the crutches aside and hollow out the top and bottom, leaving the front section as shown on the drawings and the rest of the bottom about $\frac{3}{16}$ " thick and the top about $\frac{1}{8}$ " thick.

At this point make pieces of $\frac{1}{8}$ " 24 ST aluminum to hold the mounting bolts. Drill and tap them for mounting bolts. On the "C" and "D" ships these are attached to the bottom of the bottom crutch with small flat-head wood screws. (On the "A" and "B" ships screws are not needed.) Then notch the bottom for these plates and, after drilling the mounts for motor mounting bolts, glue the mounts onto the bottom. We use Weldwood glue for this because it is completely fuel proof.

Before gluing the top crutch to the top it is necessary to install the stabilizer on the crutch.

Cut the stabilizer and rudder from the thickness of plywood designated. Sand them to a streamline shape

and cut off the elevators. Bend the control horns. Be sure the loop on the end of the horn is a tight fit on the $\frac{1}{16}$ " pushrod. Put small pieces of tubing on the wire where it goes through the fuselage. Bend the ends and embed in the elevators. Assemble the elevators on the stabilizer using cloth hinges and install the whole unit on the crutch; be sure that the horn has plenty of room to move.

Cut the top of the fuselage out for the stabilizer and glue onto the crutch. At this point check the stabilizer for alignment. Next cut a slot into the top of the fuselage for the rudder and glue the rudder in place, making sure it is lined up with the centerline of the top. Now make the fillets of scrap balsa, glue on and sand to shape. Lay the top aside and build the wing.

Our wings are built up on jigs, but if you prefer a solid wing you may use it. However, we have found it easier to hold the wing section accurate with a built-up wing, which is much stronger.

If you are going to use a built-up wing, it is better to construct a jig. First obtain a board slightly larger than the wing. Lay out the wing with the rib and spar locations on the board. Cut pieces to conform to the upper contour of the wing and glue them to the board at the rib locations, taking care that they line up by sighting down them frequently. Cut the top cover for the wing from very hard sheet balsa. Wet this piece and pin it onto the jig, making sure it is against the jig at all points. Now make the spar and after tapering it properly, glue it into place.

While this is drying cut out the ribs and glue them into place, fitting them individually to the sides of the spar. (Be sure you have the cut-out on the bottom side of the spar where the bellcrank mounts.) Next cut grooves in the bottom sides of the ribs that will be on the inside wing for the lead-outs. Cut the bottom covering for the wing and level the trailing edge. Glue in place and add the hardwood leading edge and balsa tips.

GOLDEN RODS

Let the wing dry on the jig for at least 24 hours, then remove and sand down nicely. Don't get the leading edge too sharp as this tends to make an erratic-flying airplane.

Cut the opening in the fuselage top for the motor and the wing. Mount the wing and check for alignment. Make small pieces of basswood to fit underneath the wing spar and down to the mounts to serve as a guide for the tie-down bolts. When these are dry drill for the tie-down bolts and bellcrank bolts. Notice that we use three tie-down bolts on the "A" and "B" ships, and four bolts on the "C" and "D" ships. The main bolts tie the wing, bellcrank, and motor mounts into one unit.

We first saw this system used in 1947 by our good friend Lee "Andy" Hill of Corpus Christi, and have been using it ever since. We have been asked many times, "Why do you use so many bolts?" In our opinion they are necessary. A speed job flying amok can be a dangerous weapon. We'd hate to throw a screaming motor complete with fuselage bottom into a crowd of spectators.

After the top is drilled for bolts, tape or tack-glue the top to the bottom and drill on through the mounts for the bolts. Install the aluminum pieces into the mounts and fuselage bottom and drill and tap. Install the nose ring if you are building a Class "B", "C" or "D" ship and drill and tap.

Mount the motor complete with spinner and bolt the top on.

This is a good time to see if the fuselage blends into the spinner properly. If not, finish it down as this is exceedingly hard to do after the cowl is built on.

To build the cowl leave the motor installed and the fuselage top bolted on. The bellcrank bolt must be installed at this time since the baffle behind the motor covers it up.

Make the front and back baffles and fit them to the fuselage. These can be soft balsa. Then make the baffles that tunnel the air around the

cylinder. Glue these in place after they are sanded and doped smooth. Cut the top of the tunnel baffles off flat for the cowl top, allowing about 1/32" clearance over the cylinder head. (The heads on our engines are filed flat on top to make cowl top easier.) Glue the cowl top onto the baffles. Cut cowl side pieces of speed skin or 1/32" plywood and, using 1/64" to 1/32" spacers for clearance from the side of the motor, fit and glue the speed-skin in place.

When the cowl is dry, remove the fuselage top from the bottom and remove the motor from the bottom. Install the landing skids with small flat-head wood screws and sand the whole airplane. This should complete the construction. If you have done a neat, accurate job thus far there is no reason to mess it up with a sloppy finish. So take it easy.

Make small fillets around all joints between cowl, fuselage, wing, tail, etc. and sand down smooth. Cover the whole airplane with Silkspan and put on three or four coats of dope. Sand this smooth and dope some more. Finish up with 400 wet or dry paper. Dope and sand (or use filler) until no wood grain can be seen. Now we are ready to apply the finish. We use Dulux synthetic enamel for finishing because of the high gloss. However, there are many good fuel-proof finishes on the market and you may use whatever you wish. If it is all possible, spray the finish. A slick finish will result. Our airplanes don't even have to be rubbed down.

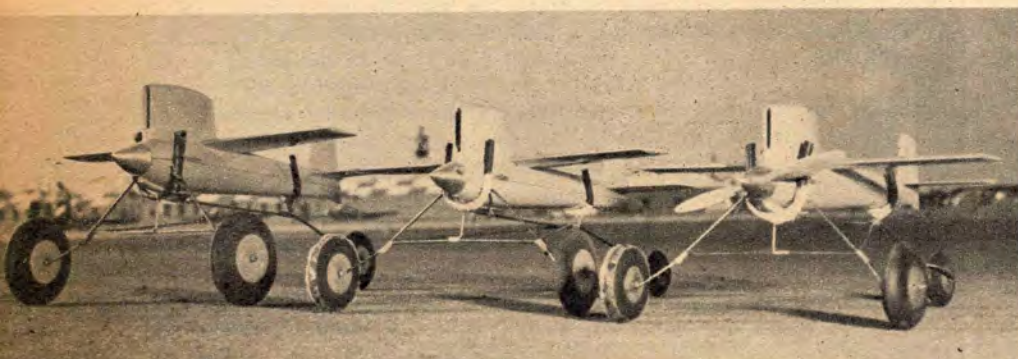
We are now ready to install the controls. Make the pushrods out of 1/16" music wire. We use "S" bends on the ends of our pushrods to eliminate soldered points. (Those of you who have had a pushrod fall out of the control horn or bellcrank while in flight know what a sickening feeling it is. With a speed job you don't have time to get sick.) Now slide the lead-outs through the wings and wrap and solder to bellcrank, bend (Continued on page 63)

TABLE OF DIMENSIONS

(NO.)	CL. A	CL. B	CL. C	CL. D
DISPL.	.19	.29	.49	.60
1	6"	6 1/2"	7 1/2"	8"
2	1	1 1/8	1 1/4	1 1/4
3	1 5/32	1 5/16	1 1/2	1 3/4
4	2 5/8	2 13/16	3 1/4	3 1/2
5	1 15/16	2 1/16	2 5/16	2 1/2
6	5/16	5/16	3/8	15/32
7	7/32	1/4	9/32	5/16
8	1 3/8	1 5/16	1 1/2	1 3/4
9	1 1/16	1 3/16	1 3/8	1 1/2
10	3 5/16	3 1/16	4 3/8	4 3/8
11	3 1/2	4	4 5/8	4 3/4
12	3/8	7/16	7/16	7/16
13	2 1/8	2 1/16	2 5/16	3 1/4
14	1/4	1/4	5/16	3/8
15	2 7/8	3 1/8	3 1/16	3 7/8
16	3 1/8	3 1/2	3 13/16	4 3/8
17	9/16	5/8	5/8	3/4
18	2 1/4	2 1/2	3 1/16	3 1/8
19	3	3 1/2	4	4
20	1 5/8	1 3/4	1 7/8	2 3/16
21	2 1/8	2 1/4	2 1/2	2 7/8
22	1 3/8	1 1/2	1 5/8	1 15/16
23	1 3/4	2	2 5/16	2 1/2
24	2 1/16	2 1/2	2 13/16	3
25	9/16	9/16	1 1/16	3/4
26	1 9/32	1 3/8	1 5/8	1 25/32
27	1/4	1/4	1/4	5/16
28	7/32	1/4	5/16	5/16
29	5/32	1/4	1 1/32	1 1/32
30	1 13/16	1 5/16	1 1/8	1 3/16
31	1 13/16	2 9/32	1 1/32	1 1/8
32	2 7/32	1	1 1/8	1 1/4
33	1	1 3/16	1 5/16	1 7/16
34	2 1/2	2 5/8	3	3 1/2
35	1 1/4	1 1/2	2	2
36	5/8	5/8	3/4	3/4
37	5/8	3/4	7/8	1 1/16
38	5/16	3/8	3/8	1/2
39	2 13/16	3 1/8	3 1/16	3 15/16
40	1/2	9/16	5/8	1 1/16
41	1.160	1.250	1.500	1.650
42	4-40	4-40	6-32	6-32
43	4-40	4-40	6-32	6-32
44	1/16	1/16	3/32	3/32
45	5/16	5/16	3/8	3/8
46	1/32	1/32	1/16	1/16

DOLLY

1	8"	8 1/4"	9"	9 1/4"
2	13	14	15	15 3/4
3	9 1/2	11	12	12
4	6	6 3/4	7 1/2	7 1/2
5	2 1/2	3	3 1/2	3 1/2
6	2	2 1/2	3	3
7	1 5/8	2	2 1/4	2 3/8
A	3/32	3/32	1/8	1/8
B	1/16	3/32	3/32	3/32
C	3/32	3/32	1/8	1/8
D	3/32	3/32	1/8	1/8
E	1/16	3/32	3/32	3/32
F	1/16	3/32	3/32	3/32



Looking their prettiest are three of the Hall-Massey stable of Golden Rods. Models get name from vivid all-yellow finish. Pat and "Babe" well known in National speed flying.



Tiny, scale-like free flight
biplane performed with great success
at last National Contest

Baby Biwinger

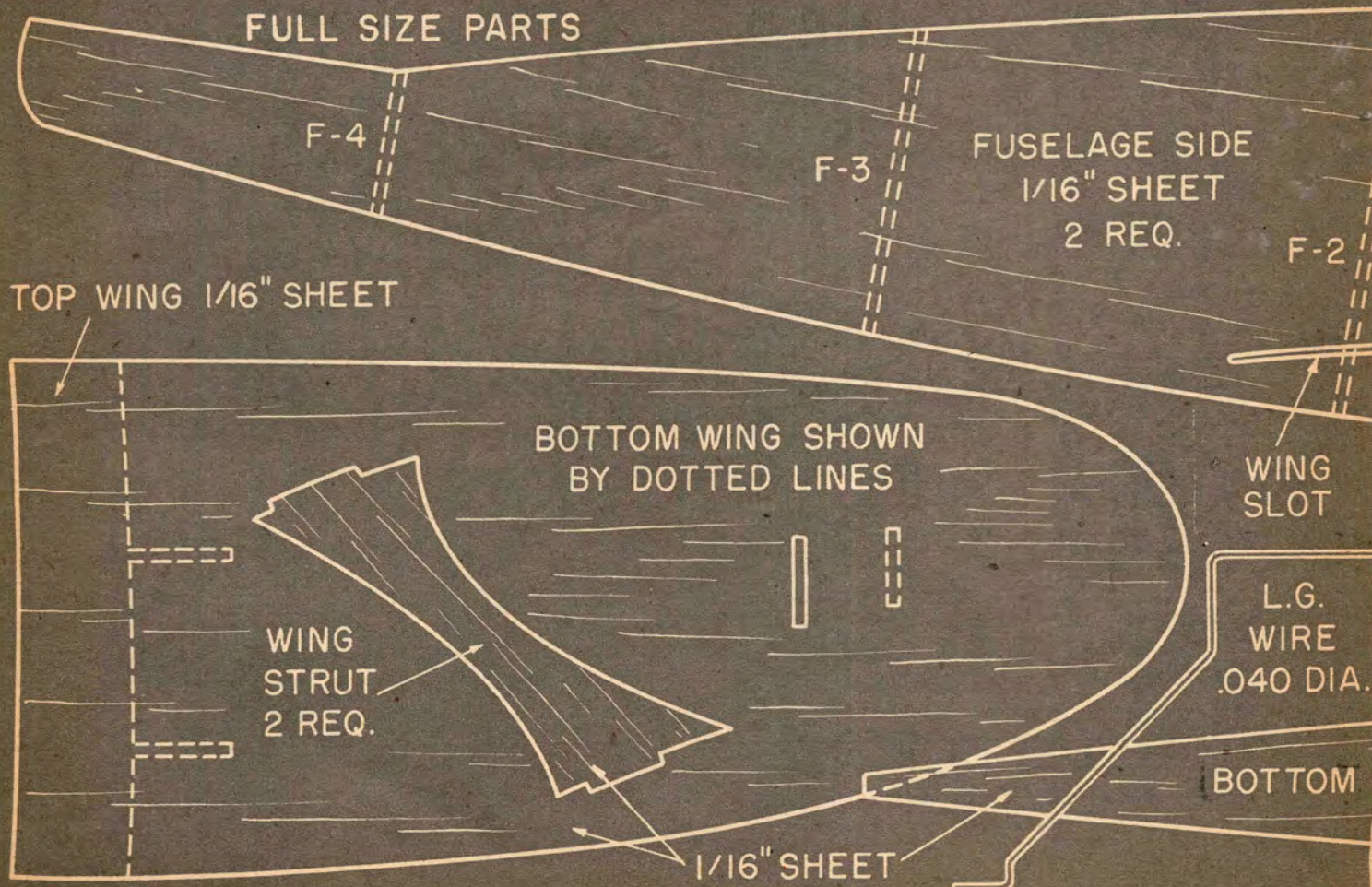
■ The *Baby Biwinger* gives you all the thrills of the big-size free flight models, such as smooth R.O.G., fast climb and good flat glide with a minimum of effort, but she's a lot easier to fly—just crank 'er up, set 'er down and watch 'er go.

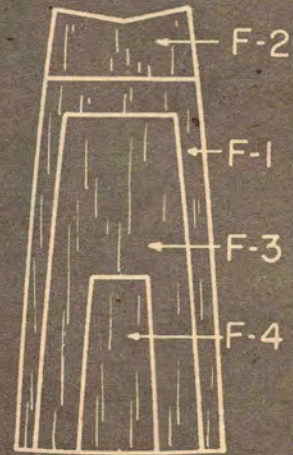
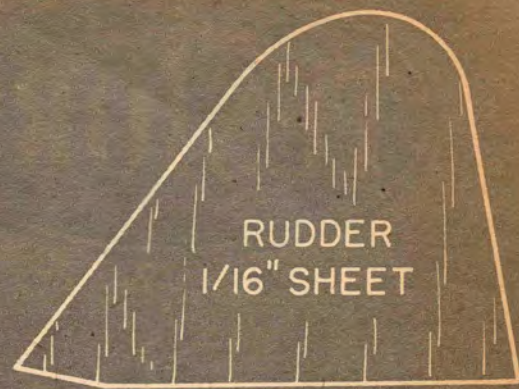
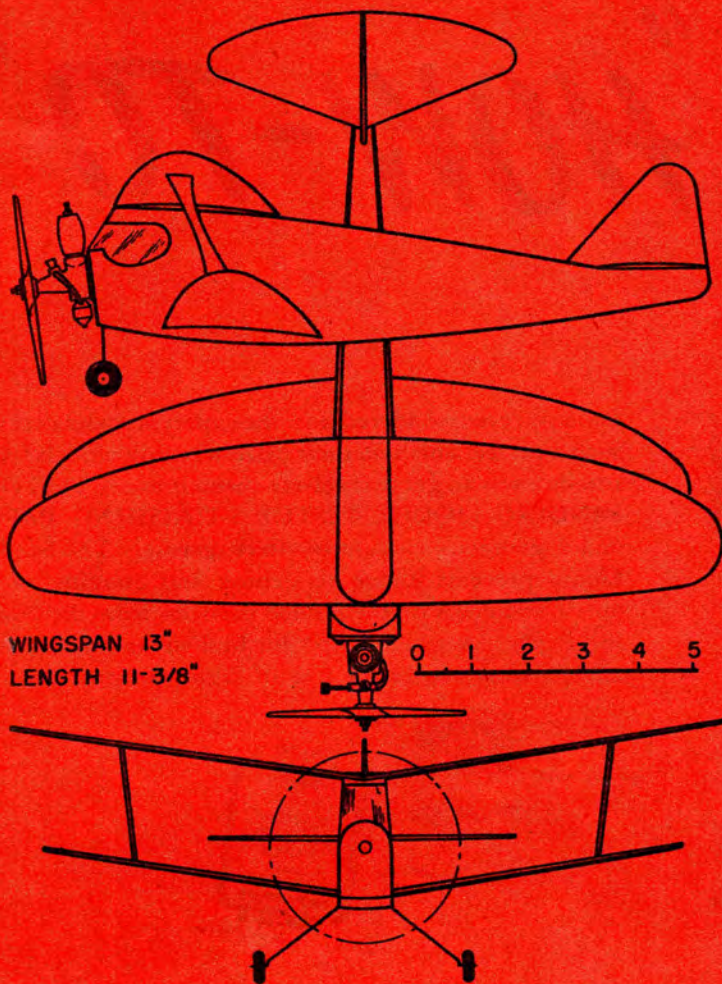
A few years ago a gas-powered model of this type was considered impossible, but with the advent of the Infant engine all that changed. This model proved to be a very smooth stable type that could be built both by the experienced and inexperienced modeler.

Construction is quite simple. Take a sheet of medium soft straight grained 1/16" balsa sheet and trace wing patterns. Cut to shape including strut slots. Round leading edges, tips and trailing edges using 200 grit sandpaper. Undercamber is formed very easily by wetting the top surface only. The wing panels will automatically begin to curve and when they reach approximately one eighth inch off the table, pin four points of the wing panel to table to dry. If there is an electric ironer in the house the job is simplified by dipping wing panels in water, then running through the ironer at about the same temperature used for silk (Continued on page 55)

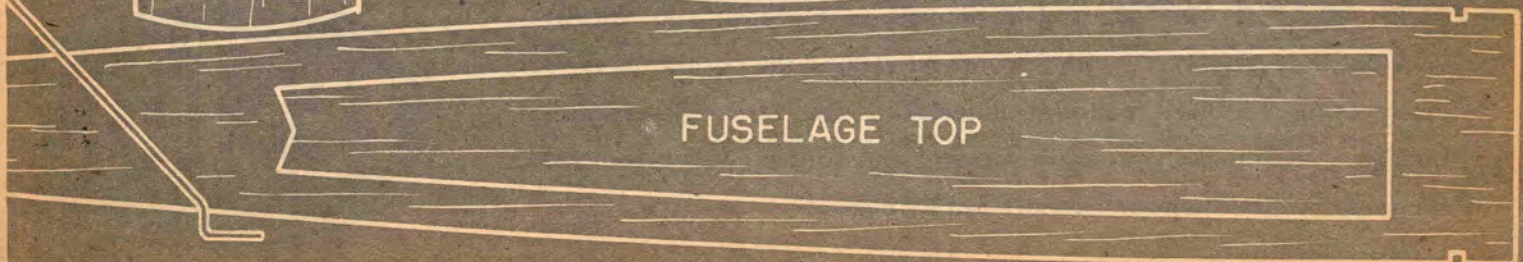
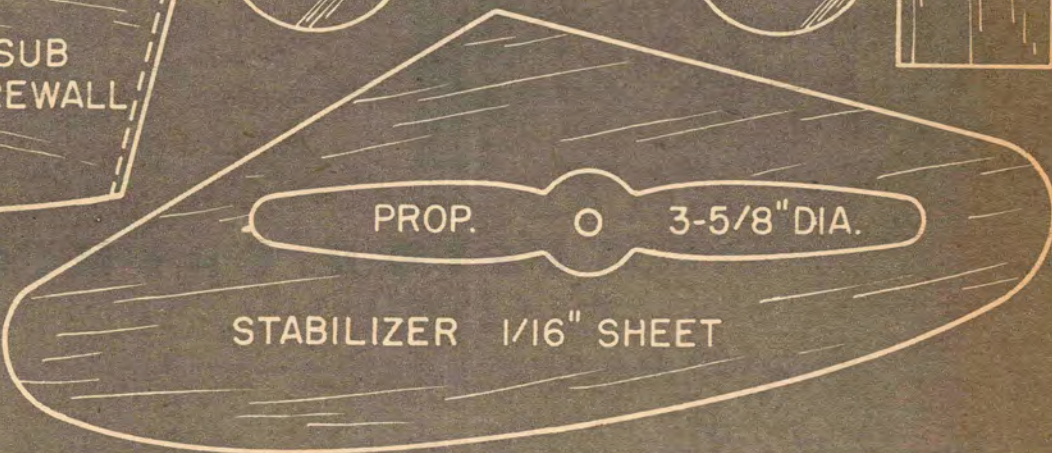
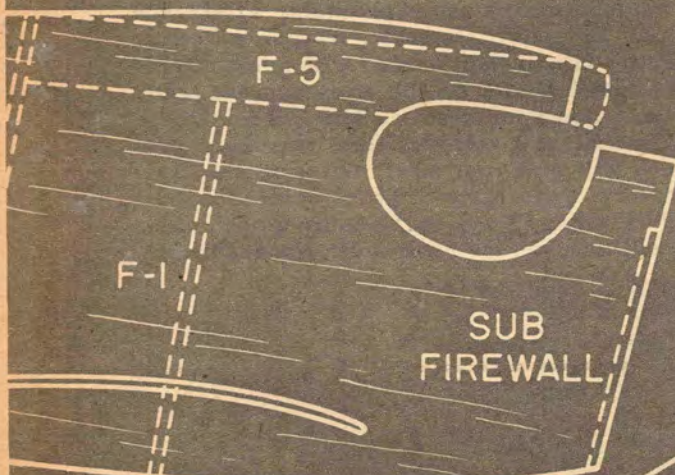


By LUD KADING





FUSELAGE
FORMERS
1/16" SHEET





"HOW-TO"

HIN



Have you ever wondered how the expert modelers achieve such a perfect finish on their prize-winning models? One sure-fire way to get that velvety sheen is to use TESTOR'S SANDING LIQUID, TESTOR'S FINISHING PAPER, and a generous amount of elbow grease. The Sanding Liquid prevents undue scratching and gouging of the finish, and floats off the sanded particles from the Finishing Paper. A valuable tip: for best streamlined appearance, always rub in the line of flight direction.



The proper finishing technique is very important if you want to get a really excellent job. For gas-powered models, a hot fuel proof finish — preferably TESTOR'S STA — should be used. However, if your model is fabric-covered, you will want to start with a first coat of TESTOR'S CLEAR DOPE on the areas that are *fabric only* (with no wood underneath). The CLEAR DOPE has certain special and very desirable shrinking properties which will give your fabric covering the exact degree of tautness it should have. Then, for all additional coats, use TESTOR'S STA over the entire model. This procedure will give you the finest finish obtainable.



TESTOR CHEMICAL COMPANY

Now is the time to concentrate on building and finishing your outdoor models . . . with Spring just around the corner. You will enjoy using TESTOR'S model materials. They are outstanding in quality . . . will make your project easier and your models better. Ask for them *by name* at your friendly hobby dealer!



ENTS FOR MODEL BUILDERS

Have you ever used TESTOR'S FYLL on your models? This plastic material is ideal for filling cracks and blemishes; is also excellent for making those smart fillets that give your model a professional-like appearance. A little TESTOR'S ACETONE on the finger tip helps in making a smooth, even application. By the way, don't use FYLL for too large fillets. A much better idea is to make a balsa fillet underneath and then use FYLL just for the final touch.



This picture will give you a helpful suggestion for an easy way to sand FYLL fillets real smooth. Round the edge of a small piece of balsa, fold the sandpaper over it, then start sanding back and forth. You can see exactly what you're doing, and can get a very even finish. As the sandpaper wears out, move it a little bit so that you have a fresh working surface. Make several such sanding blocks of various thicknesses and keep them on hand.



Y • ROCKFORD, ILLINOIS

MODEL AIRPLANE KITS • DOPE • STA • FYLL
MODEL AIRPLANE CEMENTS • BRANDED BALSA
FINISHING PAPER • SANDING LIQUID



"Tommy" Scout

By **WALTON HUGHES**

During 1917 and 1918 five hundred and fifty of these frisky little pursuits built in Ithaca, N. Y. were delivered to U.S. Signal Corps. The S-4C Thomas-Morse was fitted with an 80 hp LeRhône rotary giving it 95 mph speed.

■ The United States did not do very much in military aviation till the last two years of the First World War. At this time we were training pilots to fly the fast French scouts over German lines. Our Curtiss primary trainers were far behind these ships in speed and performance, and left a large gap between fighter pilot training and combat flying.

The "Tommy" or Thomas-Morse Scout was designed to bridge this gap with high performance and maneuverability, but had less speed than the top-notch fighter planes. Large control surfaces combined with a lightweight airframe and engine gave the Tommy a good rate of climb and excellent maneuverability. Many of these ships were purchased by private owners after the war because of the small engine and resulting fuel economy.

The structure of this model Tommy was designed specifically to give good scale appearance. No spars show through on the wing and the ribs are of the correct number and spacing. A narrow leading edge and trailing edge are used so that they will not detract from the appearance. Wire struts for the upper wing and the landing gear wires are covered with white pine to duplicate the spruce struts on the original. Stringers are used in the correct locations and sheet balsa in the areas covered with aluminum.

On scale biplanes the top wing very often flips off at the first rough landing. The main problem is to



Here is one of the most appealing flying scale models ever presented in "AT"—the generous wing area and tail surfaces make it a "natural" for C/L operation

attach the wing firmly to the fuselage so it will resist being driven back or twisted off by a force on one wing tip. Wooden struts are too brittle to resist this twisting action and fail very quickly. Wire struts are strong enough but very difficult to install using J bolts or binding with wire into plywood bulkheads.

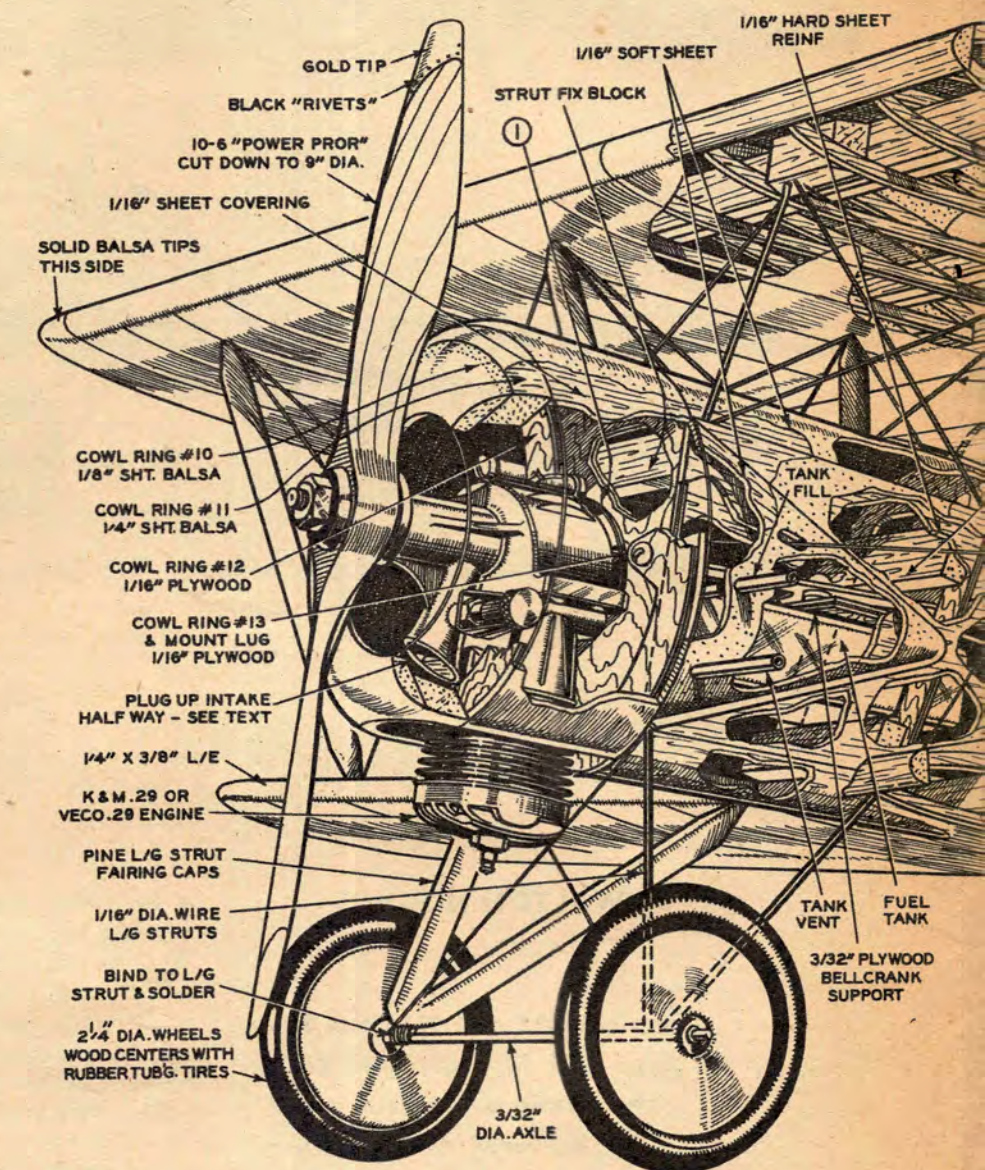
Our little Tommy sports a new type of construction that is quite strong and yet can be installed after the wings and fuselage have been completely covered and finished. The ends of the struts are wrapped with evenly spaced turns of copper wire and lightly soldered. A piece of glue-covered string is then wrapped in between the turns of copper wire and allowed to dry. Upon final assembly the string is again coated with glue and pushed into a hole in the fuselage and wing. When the glue is thoroughly dry this joint will withstand thirty pounds pull or more and also resist side pressure. Note that the cabane struts have a steel wire brace (X) between them to withstand the twisting action from the top wing.

Careful attention has been given in designing the structure to maintain proper balance. Note that the top wing on this model extends ahead of the firewall and nearly touches the propeller. In order to arrive at a correct balance with this forward wing position, the rear half of the fuselage and tail assembly must be kept extremely light. Also a large engine is used to add extra weight in the nose. The K&B 29 has double the power required but gives very steady performance with the intake plugged up halfway.

Notice in the weight table that the paper and paint job weighs 3½ oz. even though it was kept as light as possible for a good finish. The structure must be kept extremely light to overcome this extra weight. This is accomplished by using a 1/16" sheet balsa fuselage, hollow wing ribs, and radial motor mounts which eliminate heavy maple beam mounts. The stunt performance of the model compares well with the original ship.

The model has been put through consecutive inside loops, wing-overs, square loops and three and four leaf clovers. There is no tendency to mush regardless of how it is handled. We do not suggest inverted flying or outside loops.

Start construction with wings. Cut out a tin template to outside curve of rib and use this to slice ⅛" wide strips of sheet balsa. A separate template is required for top and bottom segments. Cut spars from hard ⅛" sheet with a straight edge and pin down to plans. Glue one half of each rib in position and allow to



dry. Turn the assembly over and attach the remaining half of each rib, then add the leading and trailing edge.

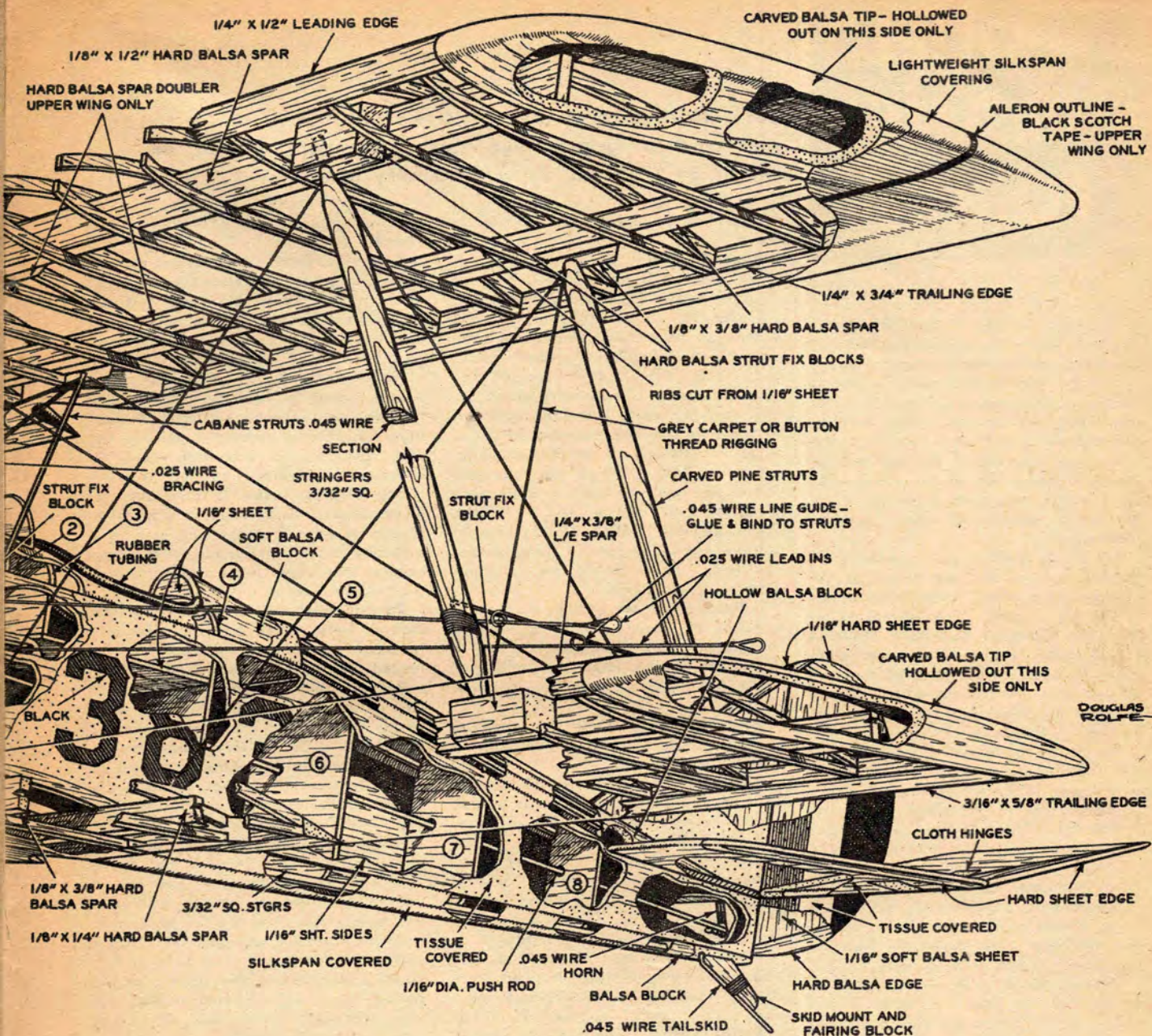
This wing assembly is much easier to build than it looks on paper. The ribs are very fast to cut out and require much less effort than cutting square slots in a one-piece rib. When making the bottom wing, splice the spars and leading edge together first; pin these in place on the plans and glue the ribs on, one half at a time.

Tail surfaces are made up of soft 1/16" sheet balsa to reduce weight. A narrow edging of hard balsa is used to give strength and eliminate warps. Cut out the soft sheet and glue hardwood edge in position. When dry, cut outside outline and sand to a finish. Assemble elevator

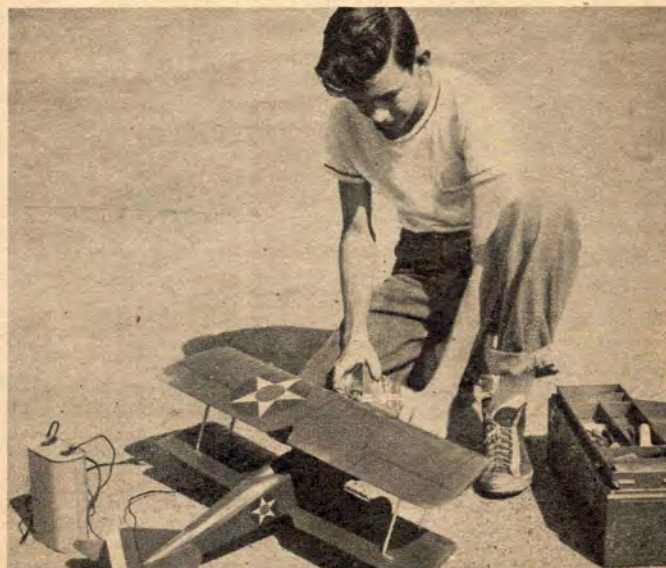
and stabilizer with cloth hinges, then fit wire control horn and attach to elevator with strips of silk and glue.

Start fuselage by cutting sides and then glue the reinforcement sheet to the inside between #1 and #2 bulkhead positions. Cut out bulkheads and add the ¼" balsa blocks to #1 and #2 bulkheads to act as strut anchors. Mount the engine on #1 bulkhead and put a nut plate on the back so that engine can be removed after ship is assembled.

Assemble sides and bulkheads, then put the tank in place through hole in #2 bulkhead. Carve wooden block to rear end of fuselage and fairing block at rear of cockpit. Add the tail surface and control system. Apply 1/16" sheet to the top and bottom of (Continued on page 70)



She flashes by in a blur during the initial testing! Designer Walt Hughes reports that the S-4C Scout can whip through almost all the standard stunt pattern except for inverted flying and outside loops—with a beauty like this we'd keep our flying low and slow!



MODEL PLANE FORUM

■ Although the U. S. National Model Airplane Meet, an annual highlight of the aeromodeling world, attracts but a minute percentage of America's several million modelplane builders, its influence upon the over-all model activity and designs is enormous. And not the least important part of the Nationals is the opportunity for model builders to get together and hash over the many fascinating phases of their favorite hobby-sport.

Air Trails queried all contestants at the last Nats to find out just what the Championship Meet Contest goer thinks of the big shindig. The editors found that the average contestant traveled 1390.2 miles going to and returning from the contest, had reached the ripe old age of 21 years, 4 months and competed in 3.2 events with the 4.15 models he took with him to Dallas.

The following briefed comments from AT questionnaire respondees are presented not in a critical sense but are representative of recurring comments.

Houston, Texas: "Any events that cannot get ten contestants should be dropped or combined with another event."—*James B. Kyser.*

Washington, D. C.: "Why not have a point system so that the winner is the one who beats more contestants than any one else?"—*Capt. Gene Causey, USAF.*

Denver, Colo.: "Would suggest an elimination for local builders within radius of 100 mi. about two weeks before Nats."—*Bob Avrett.*

Long Beach, Calif.: "It seems that something should be done about Indoor events. I am referring to stick and cabin in the Indoor. Maybe I shouldn't be the one to talk about Indoor as I don't fly it, I know it is tedious and painstaking work but something ought to be done about the events that only have four and five contestants—possibly combine all the age groups in the stick and cabin events. . . . They are taking all the glory out of winning at the Nationals by adding more and more events which in turn drag out the awarding of the prizes. I would suggest that they have the Banquet as usual, award the National champions their trophies and mail the other prizes to the contestants. And it would be so much more enjoyable if they had a good contest site."—*Sal Taibi.*

Louisville, Ohio: "Cash or bond awards in addition to trophies as at the Internats if sponsors could be found."—*PFC Walter L. Kleine.*

St. John, Mo.: "By slightly reducing the size of high-place trophies could give some recognition to lower places,

Got a question or comment? Here's the spot to air your opinions, gripes, suggestions. Questions will be answered by Air Trails' Experts Advisory Board

plaques for instance."—*George de la Mater.*

Hapeville, Ga.: "Stunt should be in two classes—A-B and C-D—instead of all combined."—*Raymond Brantley.*

Scotia, N. Y.: "I proposed that the A.M.A. set up a new competitive category for free flight jet models (solid fuel, Jetex type). My idea of the specifications for this category would be: solid fuel jets only; launching optional; no design limitations; maximum weight of model 5 ounces."—*John H. Schneider.*

Topeka, Kans.: "Think some recognition should be given down to 10th place in entries of 100 or over."—*C. O. Wright.*

Los Angeles, Calif.: "The perpetual trophies are an eyesore in their present condition. They should be re-conditioned."—*Jack Block.*

Indianapolis, Ind.: "Let the manufacturers of model supplies give merchandise as they would like to do. If this seems like too much to handle give credit certificates for same."—*Kenneth E. Ernst.*

New York City: "Drop the perpetual trophies and have all permanent ones."—*George Fong.*

West Point, Ga.: "Perpetual trophies are useless unless a miniature is permanently awarded with it."—*Don Murray.*

Detroit, Mich.: "The biggest change should be the banquet—the last is remembered the most."—*Ernie Shailor.*

Springfield, Mo.: "How about putting in a plug for Olathe, Kans., as a site for the '52 Nationals?"—*Olof L. Hider.*

Kansas City, Kans.: "I would be very pleased to see stunting dropped from the scale category. It would lead to some real scale models."—*Robert J. Aiduk.*

Dallas, Texas: "Why not split contest into two sections; one section during hot weather for F/F, R/C, gliders, etc., second section for control line of all types when it's cooler (Christmas holi-

days or around Easter)."—*Wendell C. Merritt, Jr.*

Crossville, Tenn.: "I would not recommend taking the meet elsewhere for they would just do worse. With the past experience the Navy should do better each year while a new sponsor would have to go through it all again."—*John Dooley.*

Floral Park, N. Y.: "Only as many events should be held per day as can be adequately manned, and consideration must be given to making it possible for each contestant to enter each event."—*Thomas R. Querrmann.*

San Antonio, Texas: "I think that the official flights should start on a Monday instead of on a Tuesday and end on a Saturday instead of Sunday, so the contestants can travel home Sunday morning."—*John Franke.*

Detroit, Mich.: "The members of the Detroit Balsa Bugs feel that the last Nationals was one of the best ever attended by us."—*Edward Stoll.*

Berwyn, Ill.: "If there is any way to stop stunt planes from winning scale events I wish you could do something about this ruling."—*John Simmons.*

Van Nuys, Calif.: "What're chances of every flying scale entrant building the same airplane in order to simplify judging?"—*William V. Krecek.*

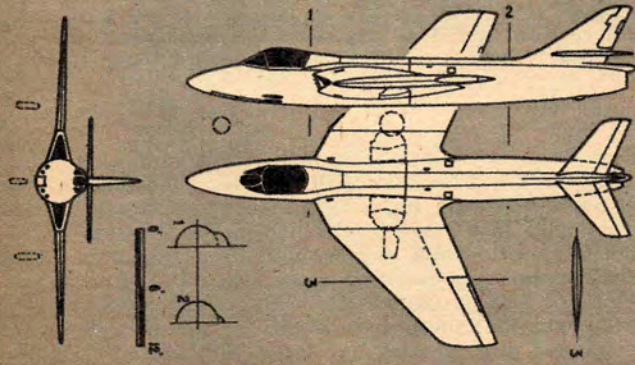
Oklahoma City, Okla.: "Have two classes of F/F gas (Half-A and above Half-A), two classes U/C gas (speed unlimited, all engines and jets combined and stunt), one class towline glider (no cross section rule), one class hand launch glider (outdoor), one class hand launch glider (indoor), one class indoor rubber power, one class unlimited rubber, one class Wakefield. Junior 0-17, Sr 17 and over."—*Ray Matthews.*

Detroit, Mich.: "Take your Nats to a real modeling district and watch your microfilm boys turn out. All due respect to Texans, that is."—*Art Jasion.*

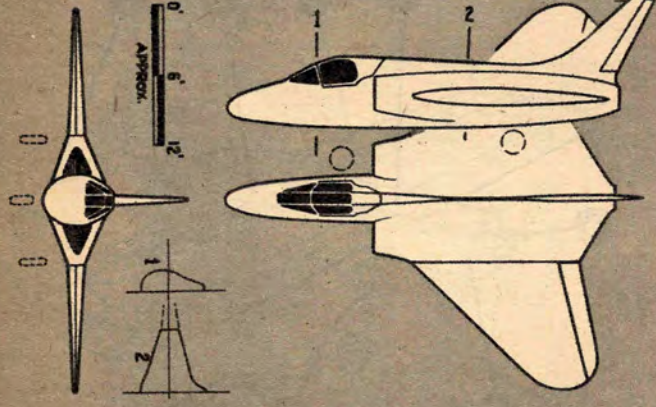


This "model" of a PAA-Load event model was designed by Pan-Am's Dallas Sherman and is intended for display purposes, although it is trimmed for gliding. Relative size can be seen from the Zippo pocket lighter. Engine is a dummy, propeller revolves freely.

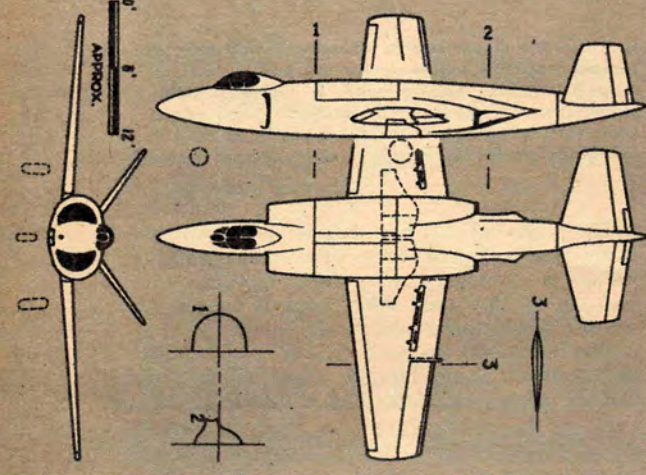
HAWKER P.1067 (ENGLAND)



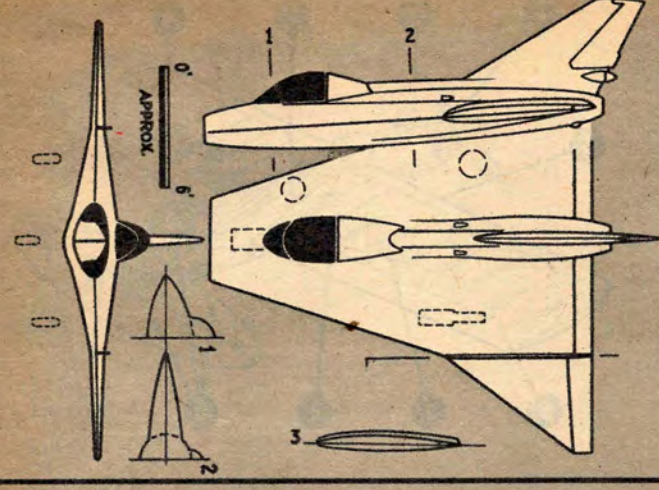
DOUGLAS XF4D-1 (U.S.A.)



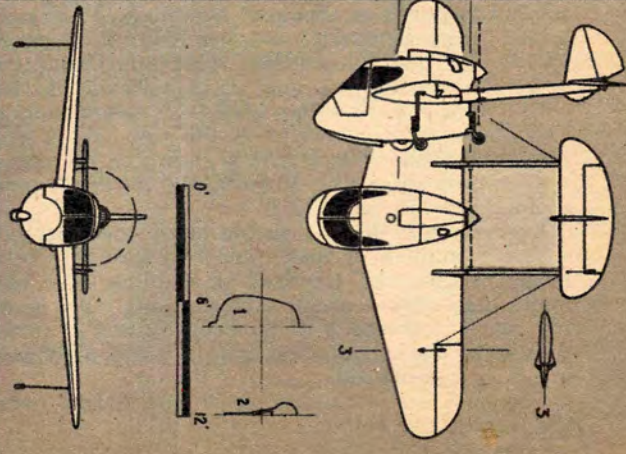
SUPERMARINE 508 (ENGLAND)



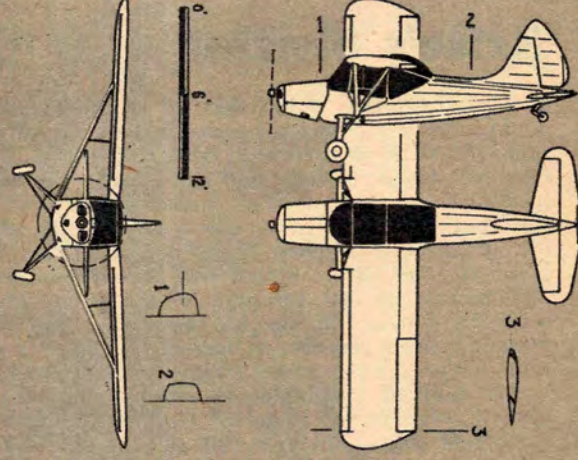
SAAB 210 "DRAKEN" (SWEDEN)



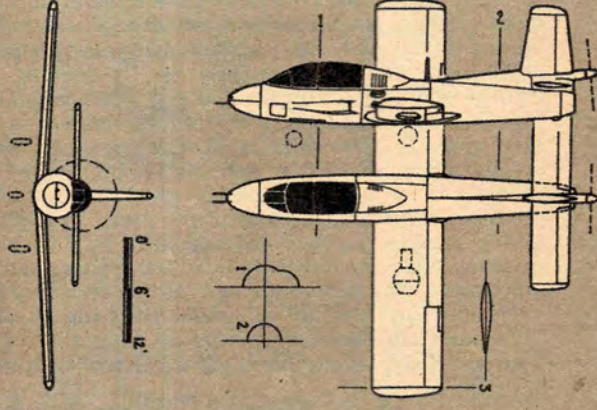
ALAPARMA BALDO (ITALY)



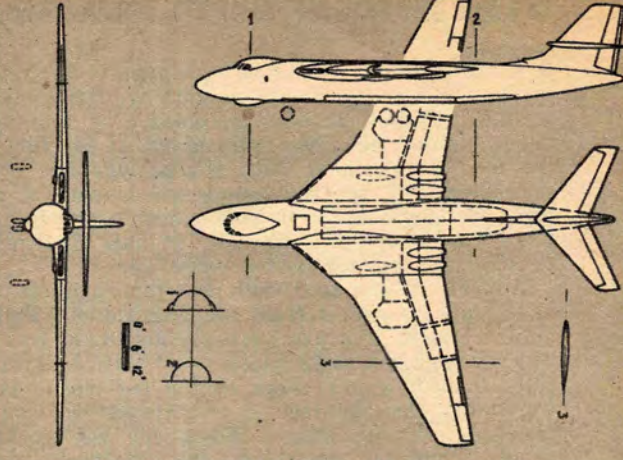
KZ-10 (DENMARK)



FLETCHER BT-22 (U.S.A.)



VICKERS 660 "VALIANT"
(ENGLAND)



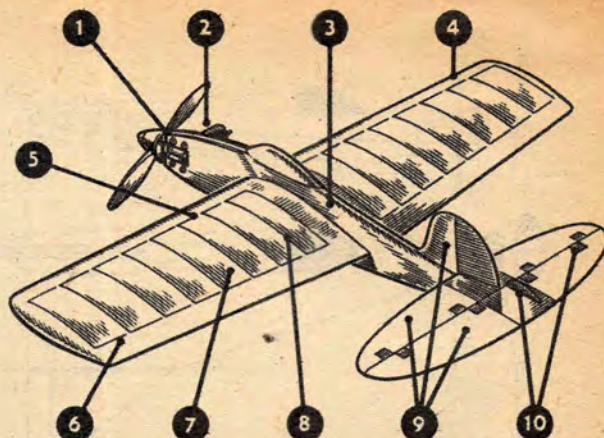
Sterling's Ringmaster

■ It may come somewhat as a surprise to our readers to see Sterling identified with anything but a scale kit. They had better get used to it, however, for something new has been added at Sterling in the form of Designer Matt Kania, who has been connected with several famous kit makers in the past. The first result of Matt's new connection is the *Ringmaster*, a Class B-C stunter of simple construction, but top performance.

This kit is prepared with the thoroughness we have come to expect from Sterling Models, Philadelphia 22, Pa. All parts are prefabricated, of course. The fuselage is a single piece of $\frac{3}{8}$ " thick balsa and fully shaped, with a large section cut out to take the wing. The fuselage is completed by simply fastening on the shaped block for the cockpit canopy outline, attaching the plywood nose strengtheners, and hardwood engine mounts. The fuselage can be left as it comes, but a lot nicer looking ship will result if it is given a streamline cross section. This also helps trim off excess weight, attaining that super-stunt ability everyone seeks.

The wing is built up quickly, for the leading and trailing edges are fully formed and notched for the ribs. In addition to these two edges there is a $\frac{1}{2}$ " x $\frac{1}{4}$ " spar. Tips are solid balsa. The spars and edges are in halves, of course, and the leading edges are connected by two ply pieces in a manner that produces a "stronger than balsa" joint. The center of the wing is further strengthened by full balsa covering both top and bottom; if you follow instructions, your wing should not fold at this critical point.

The tail surfaces are all balsa, with the elevator "overhung" so that it may have as large a travel as desired. Heavy cloth hinging; ply horn furnished.



1. Hardwood mount inserts; die-cut plywood side supports. 2. Horizontally mounted engine. 3. Die-cut profile balsa fuselage. 4. Fully shaped, notched leading edge. 5. Optional steel wire gear furnished (formed). 6. Tapered, notched trailing edges. 7. Heavy Silkspan wing covering. 8. Die-cut balsa wing ribs. 9. Die-cut balsa tail group parts. 10. Fabric hinges; plywood elevator horn.

The plans call for both rudder offset and a 1 oz. weight assembled ship together with many detailed isometric views of assembly procedure. Actually, a large percentage of the plan sheet area is taken up with most complete written instructions.

The plans call for both rudder offset and a 1 oz. weight in the outer wing. Though many engines may be used, a K&B .29 is indicated, with a 9/8 or 10/6 prop.

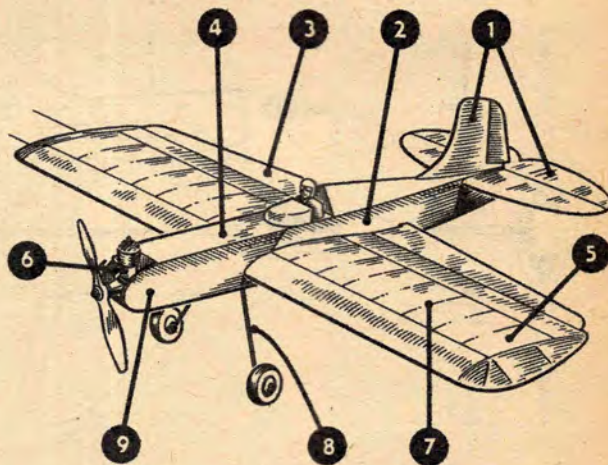
Artie's Starlet

■ Lest the reader think that he is afflicted with double vision, we hasten to note that this is *not* the same "Star" we described an issue or two ago. They look like twins, though, and are exactly the same in design, but this one is of correct proportions for the Half-A motors from .039 to .074. This latest offering by Consolidated Model & Engineering Co., New York 56, N.Y., is just half the size of their *Guided Star*. In fact, the plan for the latter, which was half size, is full size for the Starlet. The new plan has been remade, of course; it includes the same detailed instructions as did the forerunner.

The baby of Consolidated's stunter line has an area of 150 sq. ft. and spans 24". Construction follows the bigger ship detail by detail, and the only difference we could find is that the hardwood nose stiffeners of big brother are missing here, for they are not required in this size. Designer Art Hasselbach found the little job weighed about 5 oz., when fitted with the .065 Spitfire; with this amount of power it is a hot job, and, of course, will do the entire stunt pattern with a good pilot on the handle. The plane can be flown with the Cub .074 if you want real action; this engine is shown on the plans. A 7/4 prop suits the Royal Spit, while engines around .049 will take a 6/3.

Every part is die-cut, so the plane goes together with a minimum of fuss. The two forward bulkheads, which take the load of landing gear and motor respectively, are of mahogany ply. The landing gear is fastened with the same system of cotter pins as in the big job, and is fully formed. Wheels are turned hardwood.

The flaps are stationary, as on the A-B version. We learned that some experienced pilots have made

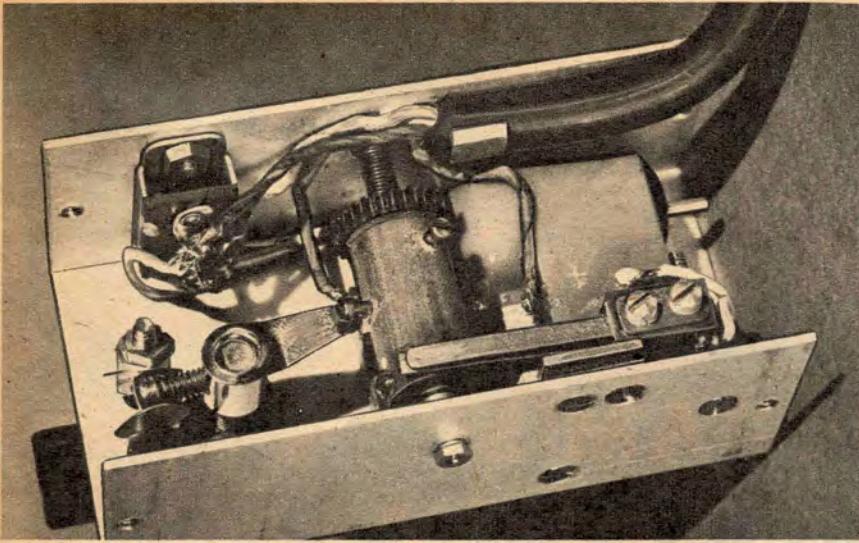


1. Die-cut tail surfaces. 2. Die-cut sides, top bottom. 3. Die-cut stationary flaps. 4. Die-cut plywood front two formers. 5. Silkspan wing covering. 6. .035 to .074 engine recommended. 7. Die-cut wing ribs. 8. Formed steel wire l.g. 9. Hardwood engine bearers.

these flaps movable in conjunction with the elevators.

For those not familiar with the Stars, the fuselage is all-balsa, with the full-length sides held in alignment by tongues in the formers, which match the side slots. Slots in the top and bottom hold these pieces in line. Motor mount may be either beam or radial. Tail surfaces are all of 3/32" stock, and cloth hinges are supplied.

It seems that there may be use for this ship in team racing and also, possibly, for speed. This is a sort of all-purpose model, and one you should be hearing plenty from during the coming season.



You don't have to be a mechanical genius or a radio "bug" to build this simple little affair; soldering is about hardest operation. Box is standard "ham" equipment; parts too.

Build Yourself a Beep Box

■ Our Hero watched his radio ship coming down the runway toward what would probably be a neat spot landing. He had lined her up with the runway right after the motor cut, and now it was just a matter of keeping her on the same path. With no wind to cause trouble, the well-trimmed ship approached as though on a beam. Our Hero's chest started to expand a bit—this landing would show 'em.

When the ship had come in rather close, it grew apparent she would overshoot by quite a distance, and O. H. instantly decided to try some S-turns to kill speed a bit. A single blip of the button and the ship veered sharply to left. . . . "Hold it, hold it, watch the hangars!" Two more blips turned the craft away from the buildings—and it headed right for the line of parked autos across the road. . . . "Look out for my car!" O. H. was getting a little upset, but he knew another blip would straighten 'er out—or was it two blips—or three? Completely lost, he compromised on four; the ship shuddered a trifle and kept on directly for the closest car. Then . . . but why go on? The inevitable finish followed. It's happened to practically every R-C flyer (the honest one, anyway) who has done much flying with escapement control.

It is easy enough to remember your escapement sequence when the ship is high in the air and split-second decisions are not really required, but when you're landing in close quarters, or when you have the ship in a screaming spiral dive (and you can actually see the wing tips getting closer together), then is when it's nice to be able to push

An AT "You-build-it"

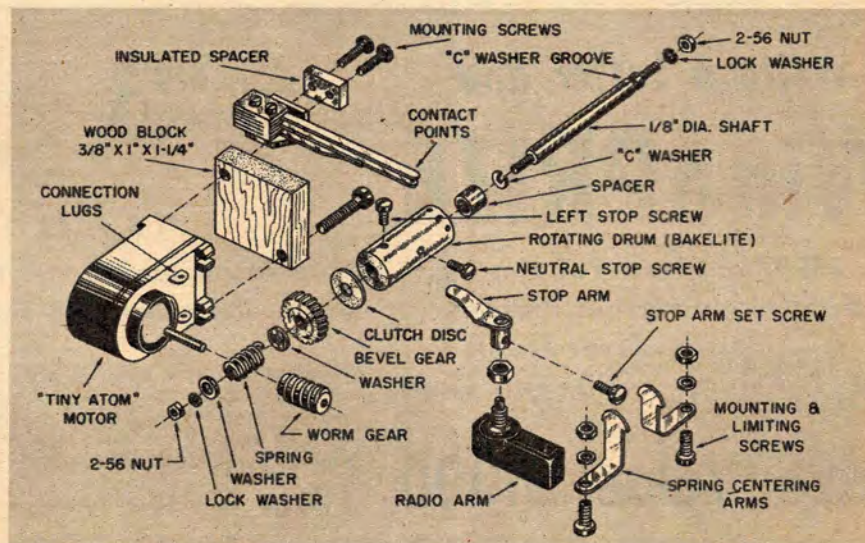
a little lever and know for sure which way the rudder is going to move. This problem of escapement sequence has been with us since the first experimenters turned their rudders with the overgrown clock mechanism. The escapement is generally considered to have been developed in the form in use today by R. B. Bourne and the late Ross Hull, way back in 1937. They originally used a common telegraph key to operate their transmitter, but soon saw the shortcomings of this, and after several crack-ups set out to find some gadget that would "remember" the sequence for them. They eventually settled upon an arrangement soon dubbed the "Bourne Control Stick"; this was

simply a lever pivoted at one end, which, when swung back and forth, operated contacts at the pivoted end. A ratchet device insured that the stick could only be moved in the basic left-neutral-right-neutral sequences; it couldn't be moved twice for right rudder without going through left in between.

Since these experimenters were flying a large sailplane, such a device was adequate. With present-day hot-powered jobs, however, something faster and even more automatic is necessary. The answer is the so-called Beep Box (named, we believe, after the control box used with radio-controlled target planes), now employed quite widely by many R-C experts. The first such box we saw was used by Walt Good, and it seems obvious that if such experienced R-C operators as Good and Jim Schenk find this device a boom, the dub R-C flyers will find it virtually indispensable.

Beep Box operators claim it gives almost as flexible a control system as proportional control. You just move the control lever the way you want the rudder to move, and hold it over as long as you desire rudder action. When the turn is complete you release the lever which snaps back to neutral; the rudder instantly does the same. You need observe no sequence whatever—simply move the control lever as you wish and the little box counts off the correct number of pulses. The best part of all is that the Beep Box can be as neat or as crude as you like; we have seen one made with an Erector motor turning a square block of wood in which large nails were driven for stops. It worked perfectly, but was a bit on the bulky side!

The Beep Box illustrated here is just the opposite. It measures 4" x 2½" x 1½", yet no precision work whatever was required for its construction. The case is a standard aluminum (Continued on page 68)



Simple, n'est-ce pas? This sketch coupled with the schematic and the photo above should enable you to make a B-B in short time. Beep-Box & copy by Howard G. McEntee.

Hey Fellows! Here's a New Idea
in Model Building!



Thunderjet

MONOGRAM'S SUPERKITS

Balsa Scale Model Airplanes
With Plastic Parts

This is it, Fellows! It's new . . . revolutionary . . . and something you have always wanted. Remember the thrills and fun you had building Monogram's famous Speedee-Bilt flying models? Well . . . hold everything . . . you're going to have that fun . . . those thrills . . . all over again . . . with the sensational new SUPERKITS.

Here are three brand new kits . . . SUPERKITS. They are SUPER-DETAILED solid BALSA models with as many as 21 SUPER-DETAILED PLASTIC parts.

You can assemble a model complete in an hour or so and have the most beautiful scale model you ever saw. Wings with double airfoil, fuselage and tail parts are smooth-carved and precision-cut feather-weight balsa, completely finished.

All the other parts, including four-bladed props and pilots and an attractive stand to display your model, are gleaming, jewel-like plastic. (See opposite page.) Complete set of genuine decal insignia and markers and three-view picture plans in each kit.

Here is model building that is all fun. It's fun for the beginner and the expert builder alike. Both will thrill to the admiration of friends when they show off their completed SUPERKIT models.

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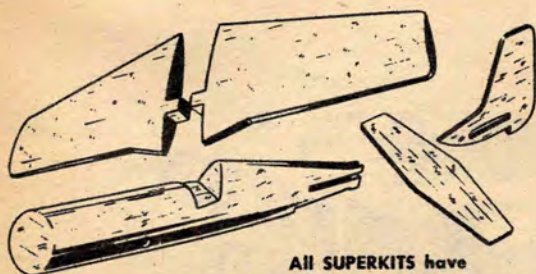
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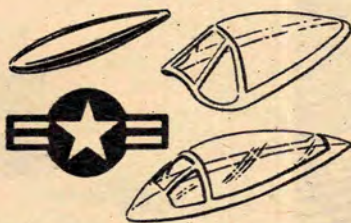
able copy of the letter blank and write your letter on that. Judges will be prominent members of the model industry and their decisions will be final. In case of tie duplicate prizes will be awarded. Contest expires midnight May 16, 1952. See SUPERKITS at your model dealer—write a letter—win a prize.

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Neat sport F/F with Cub .049 by G. H. Berry, Vancouver, B.C. Span, 36"; 9 oz.; Clark Y.

Dope Can

News, Views, Comments and Photos from Model Clubs and Enthusiasts in U. S. and Overseas

■ From the standpoint of rules the season's most important contest is scheduled for June 8th at Bethpage, Long Island. This will be the *seventh* (how time does fly!) annual Mirror Model Flying Fair sponsored by the *New York Mirror* newspaper and held on the Grumman factory airport.

We say "most important" from the standpoint of rules for several good reasons. First, the National and Plymouth International competitions follow the A.M.A. rules book very closely. As a result not much news comes out of those two big meets as far as regulations are concerned. And since even those of us who never fly in meets are affected by the so-called "official" rules as they apply to engine and model sizes and weights, we can look to the Mirror contest for some important innovations.

Because of the scope of the MMFF—1,000 contestants competing in 22 events in a single day—it has been found desirable to stretch the Academy flying rules somewhat to insure the fairest type of competition for all concerned. This year the *Mirror* folks have some real big changes. One concerns the so-called "professional" flyer. Actually, the term is a misnomer since we know of no one who earns his living from prizes won in model meets. However, there has been agitation for many years by some that those who are employed full time in the model plane industry be barred from meets. The *Mirror* takes a more lenient attitude and is more than willing that a model industry member be permitted to enter and fly for recognition—however, no prizes.

The new approach this year then is found under the Fair's eligibility statement: "Entrants whose main income is derived from the model industry may enter and compete for sportsman certi-

cates only."

This means that Joe Blow from Blow's Model Airplane Shop can fly in the contest (if he's among the first 1,000 to sign up) and reap lots of publicity for winning first in all or any event, but Joe just won't get any prize awards.

Another major change in the '52 Fair is the age categories. Instead of following the "age-old" Junior, Senior and Open breakdown, or the frequently used Junior-Senior (combined) and Open classes, the *Mirror* has struck boldly off into new territory and has come up with a Youth Class for contestants 18 years of age and under and an Adult Class for flyers 19 and over. We sort of like the titles "youth" and "adult" much more than Junior, Senior and Open. In the sparsely attended categories and those that can be classed experimental, the MMFF will conduct "Open Class" flying which for the first time means exactly what it says: open to everybody regardless of age.

So there are several good reasons—industry figures flying for recognition via sportsmanship certificates and Youth-Adult-Open age class breakdowns—which will draw the attention of contest directors from all parts of the country.

As if that isn't sufficient, the *Mirror* will also enforce 100% the stipulation that license number decals must be on every entry—this to prevent swapping of models. And *Mirror* meet directors state that all models in the U-Control events, except Half-A's must be flown with a safety thong tied securely to the handle and with a positive fastening to the wrist. (Continued on page 74)



Latest flying wing stunt model by James M. Denker of Egypt, Mass., is this Torpedo .29 affair. Jim has been building a series of these and reports this best of lot. Weight, 2 lbs.

AIR TRAILS

Baby Biwinger

(Continued from page 40)

or rayon. The wing panels will come out dry and undercamber set ready to use.

Cut all remaining pieces from medium 1/16" balsa sheet, except sub firewall and landing gear mount; use 1/8" sheet for these. Sand all pieces lightly with 200 grit sandpaper and finish with 300 grit. Round edges on the stabilizer and the rudder similar to wing.

Pin fuselage sides together and sand evenly. Cement sub firewall in place and tack cement opposite end of fuselage. Let dry for a few minutes, insert bulkheads and cabin support F-5 in place. Pin fuselage in necessary points and wrap with rubber bands to hold sides tight to bulkheads and sub firewall.

Bend landing gear, solder on 5/8" dia. wheels, making sure wheels are set straight so model will roll freely. Set landing gear in mount and securely cement to back of sub firewall. Cement bottom, starting at sub firewall, rubber banding in place at about one-inch intervals.

Cement top wing in place, and pin four places in center section. Check dihedral at this point; it should be a total of one and an eighth inches under each tip. Now insert bottom wing panels in slots, also set wing struts in place, and cement all wing joints well inside and out. Cement top of fuselage in place, and stabilizer and firewall (1/8" plywood). Set rudder in place, lining it up at 0; if any turn is necessary later, just a very slight bend at the trailing edge will take care of it.

With a flat sanding block remove any excess balsa on the edges of the fuselage, then with a piece of fine sandpaper round all edges of the fuselage slightly. After model is completely sanded with 300 grit paper, re-cement all exposed joints making smooth glue fillets, by using the little finger to spread the cement in the corners. Cut a small cap strip for the center of the top wing using 1/32"x13/16"x3" balsa. Cement in place and sand lightly.

The model is now ready for finishing. Apply three coats of sanding sealer, sanding lightly between coats with 320 paper. Apply two to three coats of colored dope.

Cut windshield from thin plastic or celluloid sheet and cement in place. Add trim to model, using masking tape to make the straight lines, or Trim Film. Fuel-proof complete model.

Use only enough dope to attain finish, and try to keep the total weight of model to three ounces including engine and propeller.

Drill two #55 holes in firewall, fasten the Infant .02 engine with two 3/8" #3 round-head wood screws.

Cut down Tornado 5/2 props or any similar wooden propeller to 3 3/8" dia. and shape as per drawing; round leading and trailing edges. A standard Infant metal propeller may also be cut to size and used.

Test flying is started as with normal free flight models. Test glide several times to assure a flat smooth glide. Start engine and run slightly rich the first one or two flights. The model should climb gently to the left and glide in a flat gentle left turn. After a few test flights you are ready for the take-off. Find a smooth spot about twenty feet long, start the engine and run it at top speed, just set the model down and the rest takes care of itself. It is not necessary to push the biplane as it is quite capable of taking off by itself.

Novel flights can be made by taking two of these little Biwingers and letting them go at two-second intervals; they will appear to be doing dog fights in the air but will rarely collide.

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F-51 "MUSTANG"

Hailed as the greatest propeller driven fighter of all time, the "MUSTANG" won its fame in World War II. Today, it's engaging in many victorious dogfights in Korean skies. ENTERPRISE has prepared a beautiful F-51 kit, with plastic molded four bladed prop & spinner, PLUS plastic canopy and full color decals!

P-40 "WARHAWK"

The P-40 entered the indelible annals of Air History during World War II, when it performed brilliantly for the Flying Tigers. ENTERPRISE now offers a really COMPLETE! "WARHAWK" kit: beautiful plastic canopy; plastic three bladed prop and spinner, PLUS the famous Flying Tiger Shark nose decals.

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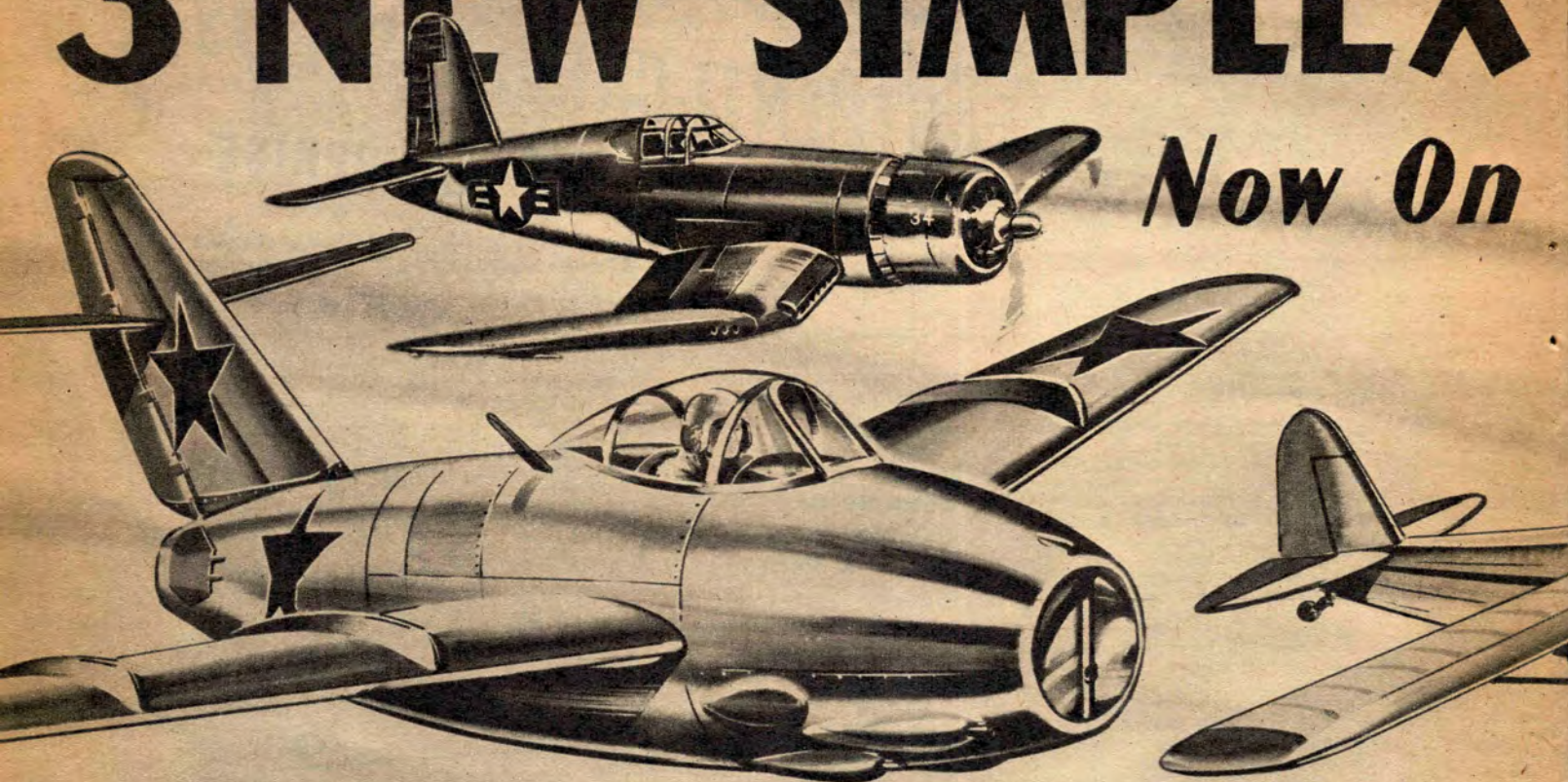
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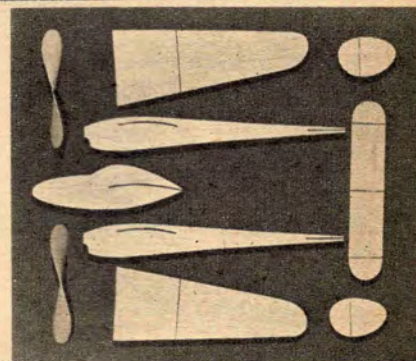
MIG-15

PIPER CUB

Flying Profiler: P-38 LIGHTNING

■ Ordinarily, the young modeler would experience difficulty with a model of this type because of the propeller problem. But the neat plastic propellers, now available for a few cents each, eliminate this carving chore and make it possible to complete the ship in very short time.

Built to scale outlines, the Lightning offers surprising realism and is capable of reasonably good performance. Center nacelle and outer engine booms are cut from firm 3/32" thick sheet balsa; other parts are of light 1/32" sheet balsa stock. Shafts and rear hooks are bent



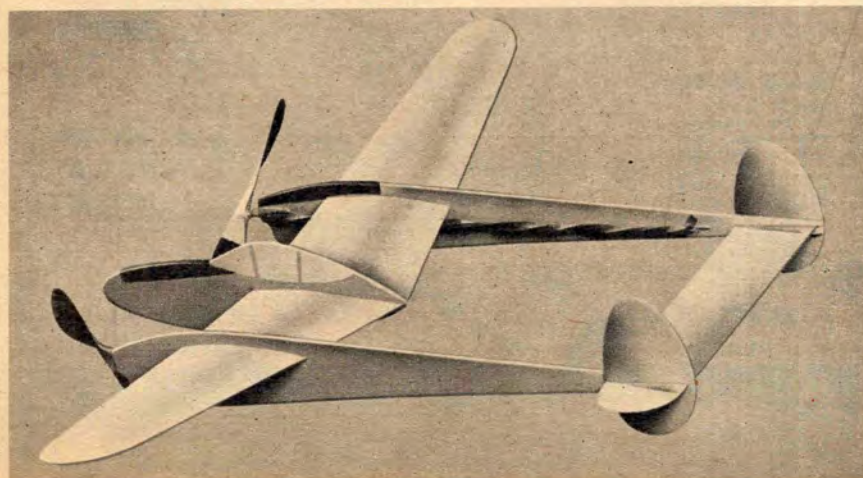
from steel straight pins, and the thrust bushings are dural.

Use a sanding block after cutting parts to outline. Smooth all saw marks and bevel trailing edges of wings and tail; the nacelle and engine booms have rounded edges. Wing halves are fitted at center to provide one inch dihedral measured under each wingtip. Pins can help position parts during assembly.

The plastic propellers are of five-inch diameter; their tips were clipped and rounded to clear the center nacelle. Single loops of 1/8" flat T-56 rubber is adequate power. Heavy doping is not recommended because of the weight and warping tendency. Some detail can be indicated and decals added for realism.

For flying, the fins and wingtips can be warped for adjusting, and additional nose weight of modeling clay will be needed for correct balance. Hand gliding, while making these adjustments, should precede powered flights.

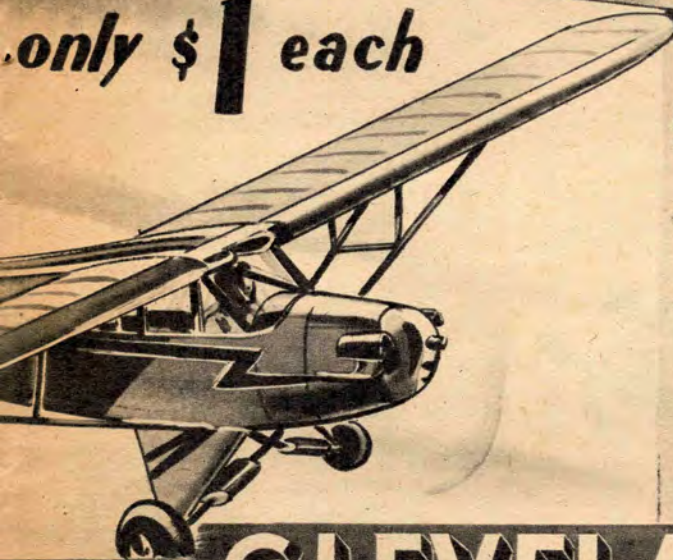
—H. A. THOMAS
AIR TRAILS



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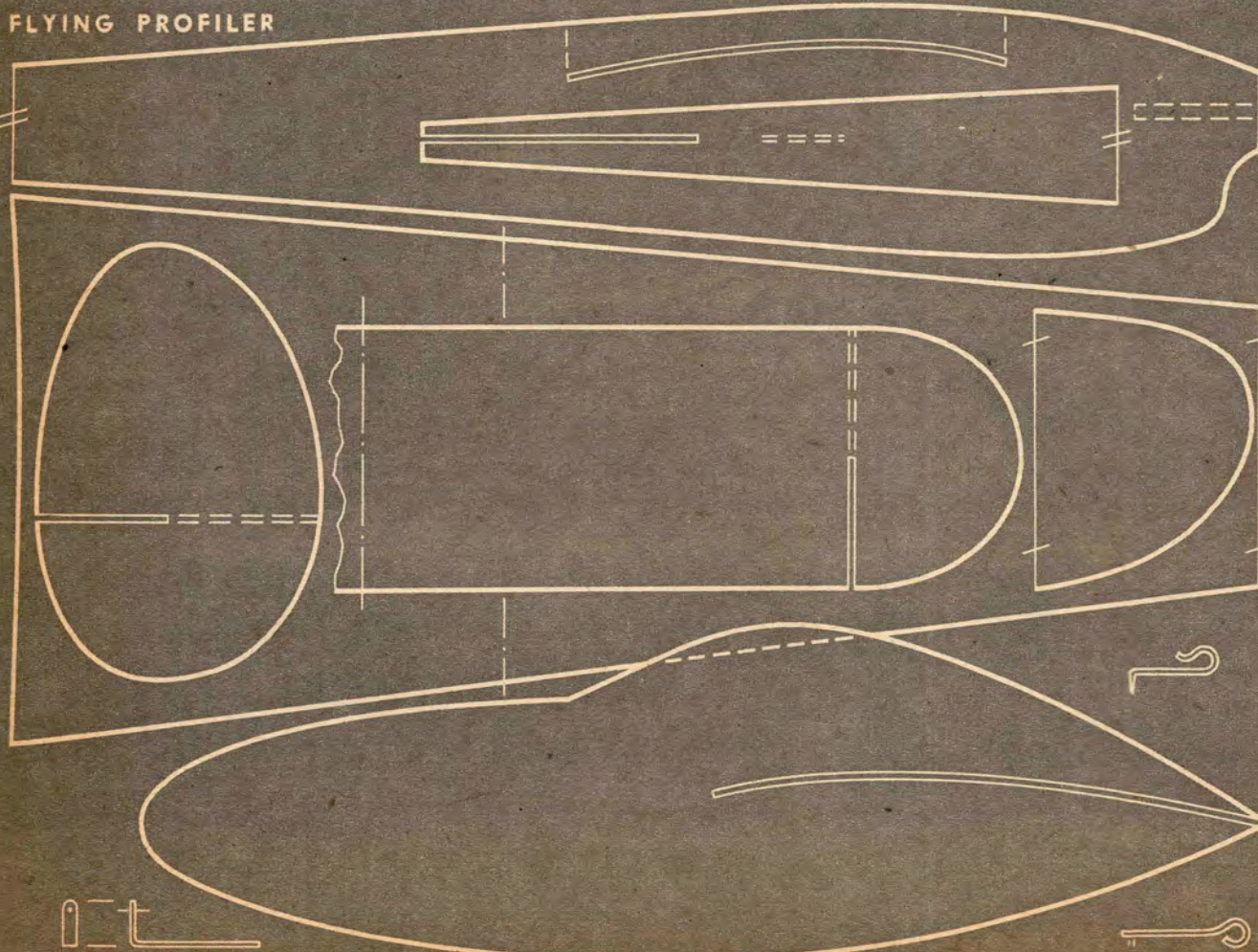
F-86 SABRE

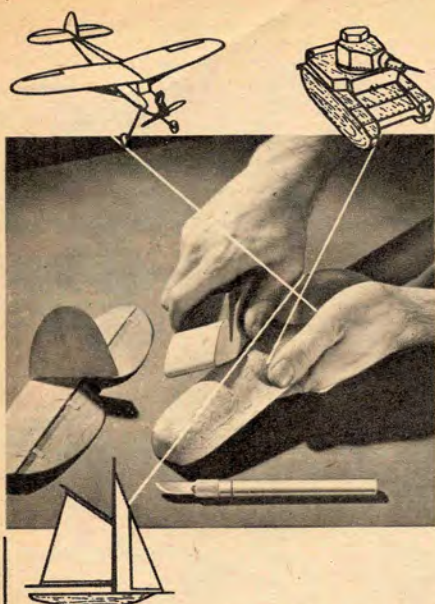
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■ In California, as this is being written, everyone is building for summer. Winter in Southern California usually amounts to rain and chilly nights but fairly warm days. At this time of the year R.O.W. flying usually comes into its own, since most flying fields generally have at least one fairly large body of stagnant water close by.

And this is the time of the year when most fellows dream up those brainstorm, some good, most bad. A rash of these new designs is seen at every flying session. Denny Davis has a really hot Dooling .29 job he calls *Beanburner*. Don Chinn and Cliff Potts have new team racers. We have elongated all our ships from rubber jobs through gliders and gassies. Walt Mooney and wife Carol have new Half-A team racers that are plenty pretty. George Barker's *Jezebel* strikingly finished in black and white is sure beautiful. Harold Leddington's *Quest* is a hot potato doing the 21 laps in 21 seconds; with a restrictor for ten extra laps it loses only one second per 21 laps and does 45 per tankful.

Joe Bilgri, Joe Foster and Manny Andrade all have new return gear Wakefields. The ships are somewhat similar, if one can call it that; one is a diamond the other two slab-siders. All have about 12 inches of tail boom behind the gears and all really go upstairs. The props these guys are using are big in capital

letters, Bilgri's being 24 inches in diameter, with Manny's even larger, 26 inches.

All these ships were slightly heavy—the fellows playing it real smart and building the fuses tough while using mostly old wings and tails which they built last summer. They will no doubt build much lighter ships for this summer's flying. Look out!

Frank Cumming's new job promises to be genuine competition. It is a twin-fuse, twin-tractor job which true to his type of work is very light and neat. Frank promises to put 1600 or more winds in each motor for a 2½ to 2:45 prop run. He reasons that the longer the prop run, as long as the model still climbs, that the flight will be closer to that five minute ideal.

Red Everitt is intending to modify his old ship only slightly at the present time, using a larger wing and prop. Wing section at the fuse will "butterfly," giving more effective area. Everything else will remain much the same. He is depending on experience for a more consistent ship. One thing for sure, once consistency sets in we will indeed have a tough time beating him.

Silk is making a big comeback, most fellows using it liberally. Bill Alford started it when he used yellow-dyed material on his *Hogan* which turned out to be quite close to weight. The ship managed to put in a number of flights with no holes, which led to the other guys getting in some (Continued on page 64)



Stubby II—Jerry Gaston's biplane team racer. Sheet balsa fuse, sparless wings, 140 sq. in., 21.5 oz., Torp .29, 9/8 prop.

R/C

(Continued from page 12)

both, and either may be used interchangeably on the Novice band of 26,960-27,230 mc. or the new 27,255 spot—if and when it is made available to us—merely by changing crystals, retuning, and, perhaps, slightly shortening antenna length.

Contest Notes. We are at a poor time of the year for this department, but there was one recent big meet on the East Coast that had an R/C event. This was the Tangerine Meet at Orlando, Florida, a three-day event with R/C flown on Dec. 30th. Put on by the Exchange Club, the meet had wonderful publicity, almost too good in fact, for the crowds of spectators almost swamped the R/C boys. The matter of spectator control is one that many contest directors just don't appreciate when it comes to the special problems of R/C.

It's bad enough to have the onlookers tripping over control lines, or stepping on the tool kits and fuel cans of free fliers, but when they crowd around an R/C flyer, tipping over antennas or inadvertently pulling out plugs, it can be really serious. Guess the AMA should get up a good set of notes for the contest directors that will give them the straight dope on these matters. Most of them seem willing enough; it's just that they haven't had the experience in R/C affairs.

Well, anyhow, the Tangerine boys managed to get their ships into the air, though mysterious troubles plagued every flyer. It seemed that all types of equipment had interference at times. Some good flights were accomplished, though, and the winners were: 1. Harold deBolt; 2. George Swank; 3. Roger Barron; 4. W. Terry; 5. Jim Schenck. All ships were originals, except for Schenck's Rudderbug. Three of the winners used Citizen equipment, and two used Good Brothers' 6-meter apparatus. One other meet that we had expected to report on, that scheduled by the P.R.C.S. at Milpitas, Calif., on Jan. 27th, had to be canceled.

In the latest list of AMA-sanctioned contests, we find only two that list R/C. They are at Baltimore, April 27th—this one is for radio only, though exhibition flying of all types of models will be encouraged—and at Rockford, Illinois, June 15th. Write to J. F. Snyder, 3107 Normount Ave., Baltimore 16, and to H. E. Hemingway, 836 Diamond Court, Rockford.

The Annual Mirror Model Flying Fair will be held at the Grumman Airport on Long Island June 8th. Since the R/C entry list at this meet is always large, it is anticipated that arrangements will be made to fly on at least two different bands simultaneously. In other words, there will be two ships in the air on official flights most of the time. The necessity for this will be seen if you recall that last year some 40 contestants showed up at the field ready to fly, and it is, of course, only a one-day meet.

The plans are to have a dual-flag system to show when the air is in use or free, and there will be enough judges to work two bands at once. Since this is a limited entry affair, get your entry in early. Send it to New York Daily Mirror, 235 E. 45th St., N.Y.C.

We noticed last year that quite a few contests had an R/C event of some sort even though the event wasn't included in the sanctioned list. Some of these R/C events were added at the last minute, so if there is a meet near you it might be worthwhile to contact the contest director and see if he has any plans for including R/C. Oftentimes, just a few requests will make up his mind.

We have received some ham-band frequencies for those who want to contact other R/C'ers through this medium.

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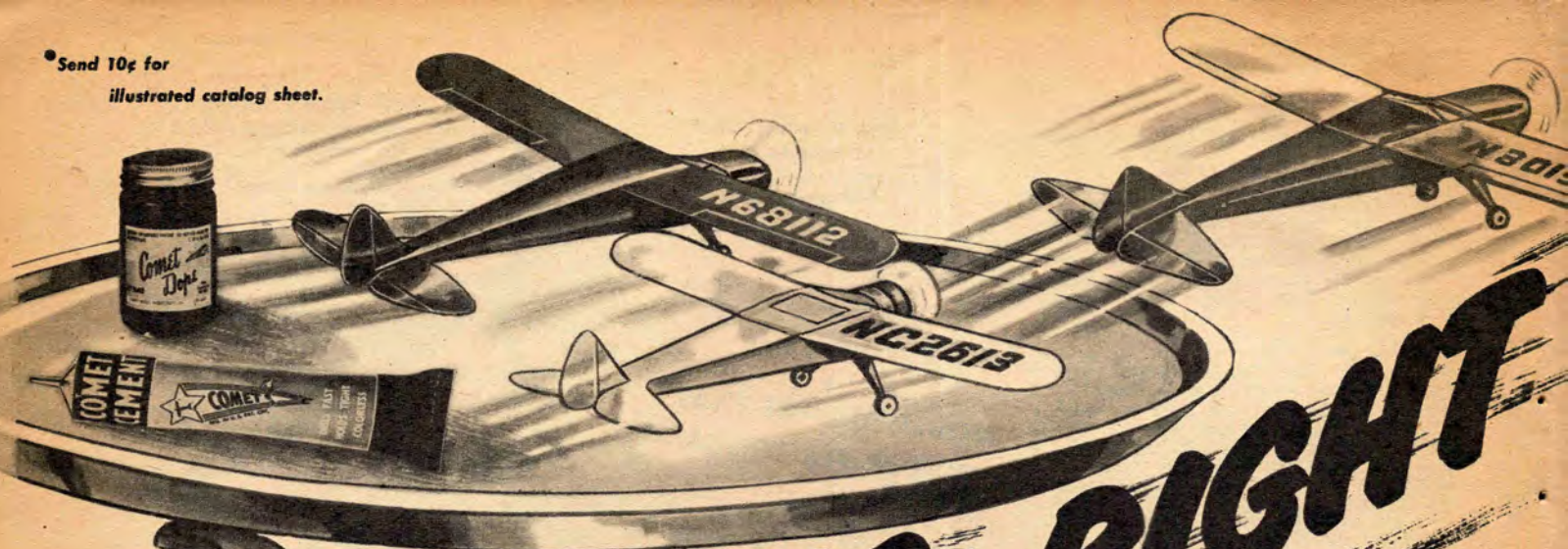
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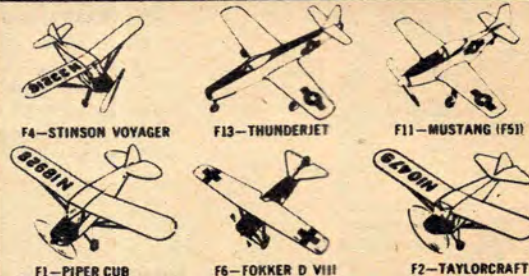
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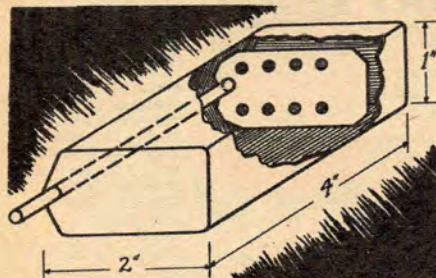
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Every part completely
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- Baffle will give steady flow of fuel in all maneuvers.
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- Froom tanks are pressure tested and guaranteed leak proof.

21B 1 in. high, 2 in. wide, 2½ in. long, 2.5 oz. 95¢
21C 1 in. high, 2 in. wide, 3 in. long, 3.0 oz. 95¢
21D 1 in. high, 2 in. wide, 3½ in. long, 3.5 oz. 95¢
21E 1 in. high, 2 in. wide, 4 in. long, 4.0 oz. 95¢

Available March 1, 1952

FROOM MFG. CO.

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Ginnie Freese, scribe of the Chicago-land R/C group, sends these frequencies of CRCM members: Clay Freese, W9EPN, 28.866, 28.810, 28.930, the first being his local R/C ragchew spot; Floyd Higgins, W9VQS, and Leo Galinski, W9SVE, 28.86; Frank Madl, W9BLN, 28.84. This group is very active on the air in discussing R/C problems; several other members have licenses but are not on 10 meters at present, and still others are studying for their licenses.

You may have heard of the International Radio Controlled Models Society, which was started about 1948 in England, but which is now active in many other countries. We learn that Jim Schenck has been appointed official representative of the Society in this country. It is hoped that a set of R/C rules for international competition might be set up through the various countries. The Society prints a bulletin containing very interesting R/C technical information. So far, there have been only a few members from the U.S.; anyone interested is urged to write Jim at 614 Ridgefield Ave., Pittsburgh 16, Pa.

For our So. Calif. readers: The Los Angeles Radio Controllers meet the first Sunday of each month at the Sepulveda Dam flying site, and the third Wednesday of each month at the Hollywood Boys Club, 8 P.M. They often have 40 to 50 people at these meetings—so don't miss them if you live in the area. Regular programs are arranged for each meeting, movies are often shown of R/C flying, but business is held to a minimum. Sounds ideal, especially the last!

Dick Schumacher, who sent this dope, says he has been using thin-walled plastic tubing about 3/16" in dia. to mount his receivers. It has give enough to keep from breaking in a bad landing, but has no snap on the rebound.

Questions. One question that is repeated over and over is the old plea:

Where can I get a kit for a radio-controlled plane? Well, we'd like to be able to give out with a long list of suitable kits, but the truth is that there are only a couple made expressly for such use.

One is Berkeley's Super Brigadier, a 58-inch suited to Class A engines. It is just about the right size for most present-day equipment and is a size that many flyers are coming to, after having flown much bigger ships. Berkeley also has the Buccaneers, in several sizes for those that still prefer the bigger jobs. While these were not really designed for R/C, they have features that make them quite suitable.

Another kit is that for Walt Good's Rudderbug, mentioned in the Feb. Column. Some of the larger scale gas jobs have been worked up into good radio models; such kits as Cleveland's Luscombe Sedan come in this category. In general, the high-performance free flight kits are not so good for radio—they have very slim fuselages, are not designed to carry a heavy concentrated weight or to fly as a radio plane should. Some of the kits made for PAA-Load work will do fairly well.

What is needed is a fuselage of ample cross-section to hold the equipment, really husky construction in landing gear and all around the nose, and, of course, good stability with no tricky trim problems.

Though there haven't been many kits in this class up to now, we are glad to note that the situation will soon be much improved. We know at least three kit makers who have R/C designs now test flying, and there are probably many more. We'll bring you news of them at the earliest possible moment.

Commercial Items. Experimenters living remote from the large cities are often at a loss to know where to send for such items as relays suited to R/C work. One firm that specializes in these

WIP! COMET'S



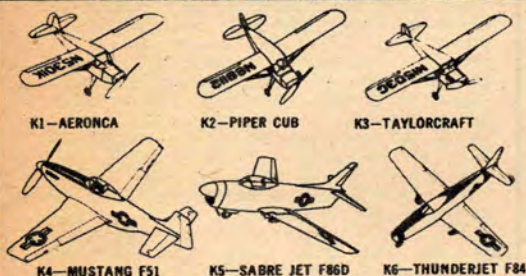
25¢ • 50¢ • \$1.00

STRUCT-O-SPEED E-Z-to-Build Flying Models

50¢

THE "K" LINE

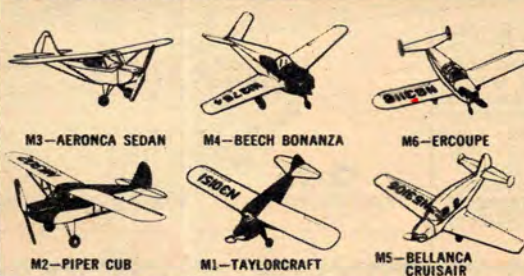
Most complete 50c kits on market! Plastic cowling and prop, balsa Hull-O-Wing! Completely pre-fab, with die-cut, color-printed balsa sheets.



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THE "M" LINE

6 rubber-powered models; suitable for 1/2A engines. Plastic parts, shock-absorbing landing gear, shaped wing!



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gadgets is Relay Sales, 833 West Chicago Ave., Chicago 22, Ill.; they carry many makes in stock, both surplus at low prices and new production items, and they also furnish sensitive relays, steppers, and many other types.

For Novice licensees, a source of transmitter crystals usable in the circuits we have given here and in the A.T. Model Annual is Petersen Radio Co., Inc., Council Bluffs, Iowa. Their type Z5 is the one we have used in our experiments; it sells for \$5. Many ham radio supply houses carry Petersen crystals, but may not have them in the frequency you want. This is especially true for the new 27.255 mc. spot; these crystals will doubtless eventually be available from many retailers, but when the OK comes through from the F.C.C., those who want to get on the air in a hurry can get the crystal from Petersen direct, in the F.C.C. specified tolerance, at the above price.

Along with their work to develop R.F. equipment for the Novice, several of the R/C concerns are busy at work on new actuating equipment. One of these is Control Research, which has a system working that combines quite a few known control principles in a new way. It is a pulse arrangement, but the basis of operation is an escapement. Both rudder and elevator control are included; a motor-driven control box fitted with a "stick" is used at the transmitter. Features include "fail-safe", simple synchronization, use with any present R/C equipment, etc. More details soon.

A recent check of our "correspondents" in various parts of the country shows that we hear from most areas (though pretty irregularly from many of them!) but seldom from much of the Middle West, excepting the Des Moines and Chicago areas, and not at all from New England. Let's hear from all areas!

—HOWARD G. MCENTEE

"Stuka"

(Continued from page 31)

fuselage at about three degrees angle.

As for landing gear, two 1/2" sheets are hollowed, glued together and streamlined for the pants. The fairings are two 1/32" sheets glued at leading and trailing edges over landing gear wire. Thin gasket material serves as fillets which are glued only to the fuselage, leaving the fairing to work freely inside.

The cowl is made completely of 3/16" sheet. Cut to fit over motor used. A Fox .29 powers my ship but any motor from a .19 to .35 will power sufficiently.

One last check should be made for correct balance (this is important!) and wing warps. If desired an out-thrust of three degrees can be given the motor to assure taut lines. Lines are of .015" cable and from 60 to 65 feet long. Products found most suited to this ship are: Fox .29, Top-Flite prop 9/6, Master's medium stunt tank, Froom 1 3/4" spinner, Veco control horns, bellcrank, and 2 1/4" sponge wheels.

To achieve the desired finish, time and work must be applied. Sanding and more sanding along with a Jap tissue covering will give you a basically smooth fuselage. To this three coats of clear dope and three of sanding sealer are added. Sand between coats. About four to six sprayed coats of black will give you a mirror finish. Aero Gloss was used throughout. Don't forget the fuel proof if you use regular dope or lacquer. German insignia gives spark and realism as do the two carved pilots and all the detail you can cram into the cockpit. To form the rounded rear portion of the cockpit, cut the tail section from a 6" bubble canopy.

Take care of your finished product. Wash with soap and warm water after each flying session.



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- (A) EMF 1909 3-in-oner, wheelbase 6 1/4".
- (B) 1904 Cadillac, wheelbase 4 1/2".
- (C) 1905 Reo, 4 passenger runabout, wheelbase 5".
- (D) 1905 White Steamer, wheelbase 5 13/16".
- (E) 1909 Hupmobile runabout, wheelbase 5 3/4".
- (F) 1909 EMF 30 Racer, wheelbase 6 1/4".
- (G) 1908 Baker Electric, wheelbase 5".

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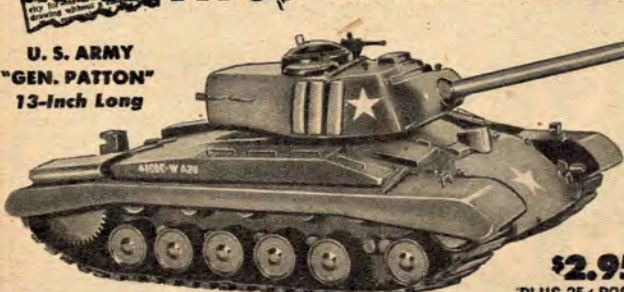
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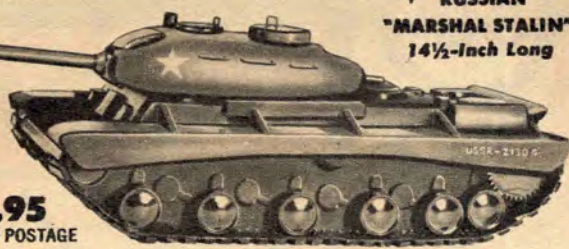
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SUPER POWERED! More than 4 1/4 lbs. guaranteed thrust... the equivalent of 3 HP at 190 mph with 70% propeller efficiency... 1948 AMA speed record of 179.03 mph.

EASIEST STARTING! Most practical and reliable engine ever built. No propellers to break. No ignition system to burden your model. No bearings to wear out. No expensive, special fuels to buy or mix.

MOST ECONOMICAL! Will not wear out. Constant high resale value. Savings on propellers and fuel alone pay the difference in cost between Dyna-Jet and cheaper engines.

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DAYTON MUNICIPAL AIRPORT • VANDALIA • OHIO

Open Cockpit

(Continued from page 25)

the gas tank. The mute sky rained fire. Metal parts, flaming linen, chunks of wood raced to the hard, unyielding ground.

For days afterwards that faint, sick dizzy feeling walked with you. It dug deep inside you, and it was the worst thing you had ever known. You fought it, though. You borrowed strength from the men on the field, men who set their jaws and went up into the sky quickly again, to teach it a lesson.

And in due time you came to Slim, and you said you were ready. He hit you on the shoulder and grinned, and he took you up again, and he never mentioned the Saturday you had stayed away.

Then, finally, came a long-awaited morning, a mild, golden morning, with just the bite of an old winter in it. A special morning, set aside and different from all before, and all that would come after. You were to solo.

Neither Slim nor you had much to say. He offered to take you up and go around with you once more, but you felt instinctively you must refuse. Your heart flip-flopped around in your chest when you and Slim wheeled the silver bird out of its hangar. He insisted on examining it carefully, from propeller to tail. You got in, meanwhile, scrambling, shifting, unable to sit still. And finally he swung the prop, and you warmed up the engine. Slim watched you, hands on hips, chewing a big wad of gum. He sure was nonchalant, Slim was; but he was chewing fast and furious.

Slim waved and pulled the wheel-checks. You were speeding, speeding; the field rushed by; and you were climbing over the tree tops.

For a frantic moment, it hit you that you were alone, and high. And the plane wasn't behaving properly. There was something wrong! You were climbing too fast. Your heart pounded crazily and the bottom of your stomach was tied in a cold knot. You held the joystick in a death grip. You had done exactly what you had always done. But the plane was walking right up into the sky, perversely.

Then it came to you. Slim was not there in the front cockpit. The absence of his hundred and eighty pounds made the plane climb faster; made it lighter on the controls. You corrected for the weight difference, and the Jenny obeyed your touch like a sensitive horse. It climbed gently now, its wings almost level. Everything was under control. Your own control.

You leveled off at 2000 feet. You looked over the side. The stinging cold slipstream smashed against your face, tore at your helmet and goggles. A sudden mighty exhilaration filled you. It was a primitive feeling, raw and intense, as if you were clashing with some great, unseen power. And mastering it, too. You were a god, up there high in the blue. How small the field down there under the wing!

Bam! Bam!
The old OX coughed and misfired. Was something wrong with it? If it conked now . . . You held your breath for an eternity, waiting for it to repeat the ragged performance. But it chugged on evenly. Apologizing, even. You relaxed, laughed to yourself and called that OX-5 a loving name.

You tried a shallow bank. The Jenny slid off on a wing but you righted it; you lightened your touch on the stick, tightened your lips and tried another. Better. Confidence crept into you. You even worked your way through a big, sloppy Figure Eight. A wonderful feeling of elation swept over you. You roared confidently through the endless blue, the Master of the Skies.

At length, you started down. Easy now. Landing was the toughest test.

You were diving too steeply; too steeply. The ground rushed up at you through the whirling disc of the propeller. Too fast, too fast. Wing wires shrilled eerily. Overshooting the landing area. You pulled the nose up sharply, gunned it, and swung around for a new approach. Not so confident now.

On the field below, all work had come to a halt. Eyes shaded from the sun glare focused on you.

Slim was down there in front of a hangar with a little knot of the flying gang. They were all sweating it out with you. Slim stood rooted to the ground, hands jammed in his pockets. You wanted to make good. You wanted them to be proud of you. You had to make good.

You looked for the old windsock, picked up the wind direction. You ruddered into position. Throttled down, and settled, slowly, slowly. The wheels touched. *Wham! Bam!* And the Jenny was on the ground.

Intact. And so were you.

You had soloed! *Brother-r!* You ripped helmet and goggles off your head. You let your breath out, hard. You leaned back limply against the cockpit combing. You couldn't move. You watched Slim come pounding up, yelling just like a kid let out of school. You saw the rest of the gang trailing him, waving and shouting.

But you didn't hear a thing. Not a thing. For at that one treasured, fleeting moment of a lifetime, a young man owned the whole, wide-open world.

Golden Rods

(Continued from page 38)

clips on the ends of the lead-outs and the nut on the bellcrank bolt after the pushrod is installed.

Make the tank out of thin tin. We show no tank vents on the drawing. Although we have inside vents on our tanks, you may use inside or outside vents, or even pressure tanks, with equal success. Be sure to put lugs on the tank and tie it down securely. A loose tank will froth the fuel and cause you lots of trouble with needle settings. Connect the tank pick-up tube to the needle valve with Neoprene tubing of the size recommended by the engine manufacturer.

Cut out the spinner for the prop and you should have the finished airplane before you.

Now wait a minute. Before we go to fly, let's talk the situation over.

First of all, do you have dolly trouble? If not, use your own. If you do, build one like ours. With our dolly (tracked straight ahead or a little to the outside) all you have to do is stand like a big wooden Indian and let the airplane run until it has flying speed, give a little up, and lo, you are in the air.

O.K., we have that whipped so will go on.

First of all, special motors are wonderful, but while you are messing with them, someone with a good stock motor will run you ragged. We know—it has happened to us. Keith Storey always used stock engines, but paid attention to all the other details such as props, airplane design, fuel and tanks. For our money he was, and still is, the shrewdest modeler in the racket.

About fuel, don't be carried away by the *Blast* that old so and so is running in his motor. We have had some very rapid runs with stock fuels with very low nitrated content.

Props are, in our opinion, the big item of speed flying. Buy or carve good props. We use Tornado props almost exclusively, but if you have been having success with other kinds, use them.

Last of all, be sure that your gear is in good shape. Don't use kinked or rusty lines, dirty fuel, and keep that motor clean. If you get dirt in your motor don't run it until you are sure it is clean.

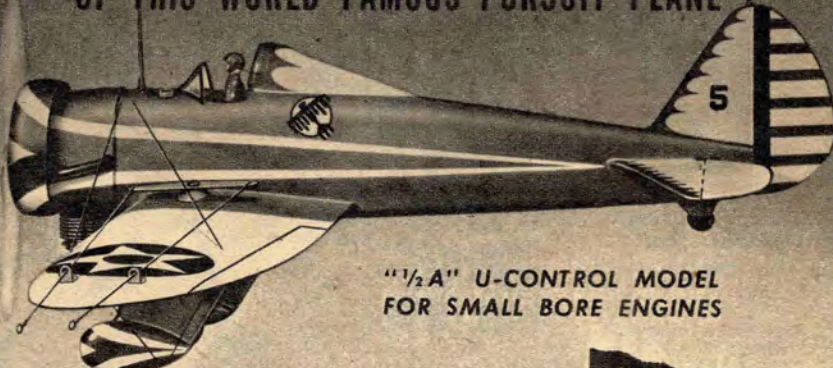
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A REALISTIC SEMI-SCALE MODEL
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SPAN 18 in. WEIGHT 5 oz.
LENGTH 13 1/2 in. ENG. DISP. .039 to .074

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Air Trails Blue Ribbon Model. An exact replica of this world-famous biplane. Complete with stamped metal cowl. For .045 to .099 Engines.



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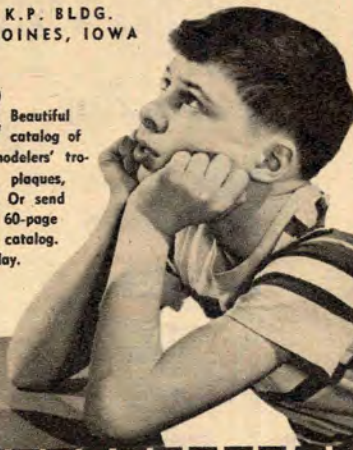
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Western

(Continued from page 58)

close looks to see what gave.

Denny Davis and Tom Moffit then turned to and followed suit. Roy Taylor outdid them all with his six-ounce Half-A job which was yellow silk. Jim Thompson had quite a run on this stuff in his shop, so now you see *Sailplanes*, *Zeeks*, *Hogans*, etc., all in that pretty red and yellow silk.

One tip to be passed on at this time which apparently few modelers know about is how to patch silk, once a hole gets in. Way back in 1937 and 1938 the boys were using silk and having a tough time until one gent discovered that pre-doped silk was easy to handle. So, pre-dope some by covering a small balsa frame and putting on two thin coats of dope. Cut a section around the hole, keeping the cut-out with well-rounded corners, in no instance cutting a square corner. Lay the pre-doped silk on the cut-out and mark around the hole with a pencil, allowing 3/32" to 1/8" for overlap. Cut out this outline and dope in place. When dry, dope it up to the rest of the surface. A beautiful, clean, neat patch.

Another trick the fellows use is to put an ounce of sanding sealer along with 15 to 18 drops of castor oil in each eight ounces of dope. This serves the dual purpose of filling fast and keeping the covering flexible.

The Armed Services still manage to grab up the top modelers. Ernie Wisely is back in as a chief in the Navy. Tom Moffit recently enlisted in the Air Force, joining Bill Trumble and Dave Rominger who have already been building in England and Japan. On the other side of the ledger is Jack Lee from Parker, Arizona. Jack was recently discharged and writes to state that model building is going over big in his home town. Wakefields and Half-A's are it at the present. He sent us a modification on a new prop stop of ours which sure looks good, may be the answer to all our troubles. We will see if it works as good as it looks before passing it on.

The contest season is already starting and by the time you read this we will have been to Tucson and Phoenix. Those guys there sure have beautiful flying weather when the rest of the country is suffering. Last year we managed to put between 16,000 and 18,000 miles covering contests, and this year looks like even more miles.

We note the passing of fuse dethermalizers in the northern part of California. No real trouble as yet, but the Northern California Free Flight council has deemed it necessary to outlaw all such fiendish devices. In this connection, did you read the idea for a safety fuse as outlined by Hal Roth on page 66 of the March "AT"? The article explains how Larry Parsons of the Oakland Cloud Dusters came forward with the gimmick of using dry ice plugs in place of lighted fuses. The Oakland boys say the CO₂ works fine. With all the fire hazard eliminated, it should be worth trying.

We received a very interesting piece of correspondence recently which, though not from any of the Western States, seems a swell idea and one to be passed along. The Woonsocket, Rhode Island, Flying Fools held their annual contest and charged 50c entry fee per event. The money thus collected was turned over to the Wakefield fund. The arresting part about this gesture is that the idea was suggested by a non-Wakefield flyer who deemed it necessary that we go over there and bring that mug back. The idea has the elements of making it possible to take in other contests of international scope in addition to the Wakefield. What say, fellows? Ed Dolly passed along the information and the idea will sure help.

Along this international think line, there is strong feeling in certain quarters for combining the Wakefield and F. N. A. cup, which is a team rubber event. This is being presented in the hope of balancing a contest list that is threatening to become unwieldy due to the diversified schedule of special events. We have speed and stunt in one contest, F. N. A. another, Nordic another, Wakefield and a separate power class all being flown in different countries at different times. Do we need an Olympics of aeromodeling? The answer from this corner is yes. This brings about pressing problems but ones which can be settled if we knuckle down to it. Mull it over, then tell others how you think.

Contests are still going on, some unusual ones especially for beginners by the San Diego Airliners. A recent one was the rat team race where anything goes and everything happens. The older, more experienced flyers were mechanics picked out of a hat to help the younger fellows. The competition was tough especially for the mechanics who had to endure the good-natured ribbing of all the rest of the guys when they couldn't get an engine running.

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The contest was very much a success, so good that one is being scheduled for each month, but next time there will be rules.

The regular team race rules will be followed with only two exceptions. Motors need not be completely cowed, only the crankcase, and no shut-off is required. Seems easy, but look out for some real creations.

Another shindig planned and to be flown soon is the Jim Walker no-rules contest when a contestant must state the number of laps he will fly and the time it will take, points being awarded accordingly. He will be penalized for anything which is more than stated. Points will be given for starting the motor and for spot landing. In other words, all one has to do to win is know his ship and motor.

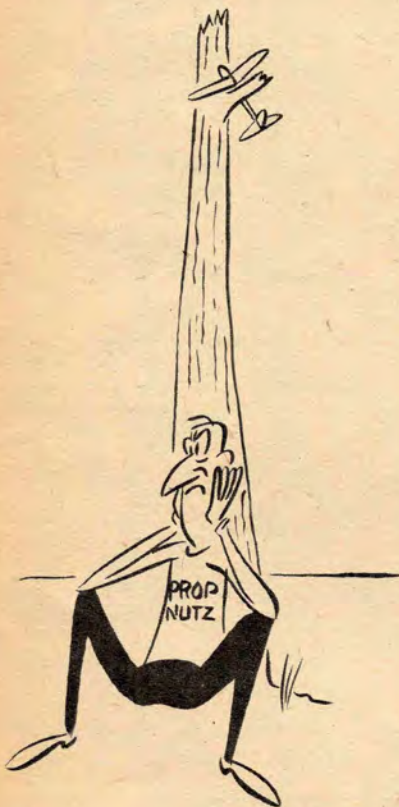
The F.A.S.T. club announces a new event for 1952 wherein they will have a women's trophy for high point during the year. The Airliners will have a women's event in their next team race. Violet Hoyt has presented the trophy and will act as starter for this event. A real nice gesture.

Local contests still are going over big with what seems like the same guys winning. Ralph Quong of Fresno brought out a new Hornet job, tested it, turned in two max 10 flights. Then went home. He won the contest too.

John Werts, Jr., is still pushing the rest of the gang around at Bakersfield. Clint Merrill is starting to really climb on the band wagon with a first and a second at their last meeting. For his second place he totaled 23:11. Skippy Fattig is still showing the older fellows how to do it, winning Class C and placing in Half-A.

At the last San Diego meet, Denny Davis and Butch Corby staged a ten-reel thriller to place in the order of one-two. They were heads and heels in front of the pack with one flight left. Each managed an over-run on the third flight, then did six minute max's, with Denny out in front with his Beanburner. Both ships were silked.

One last note which we must pass on is Harold Leddington's eternal troubles with gas tanks. We can't figure out if he is just too much in a hurry or what, but his latest team racer had a clockwise tank in it for counterclockwise flying. The ship just couldn't do more than two laps. Why!



"The only limb on the tree,
The only tree on the field,
And natchery, I—
Am th' only guy,
Whose plane sticks there like it
Was sealed ! ! !"

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BOEING PT17 GAS



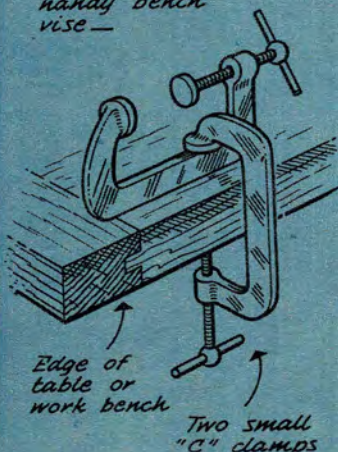
45" Span. Can use 5 cyl. M5 motor to scale or
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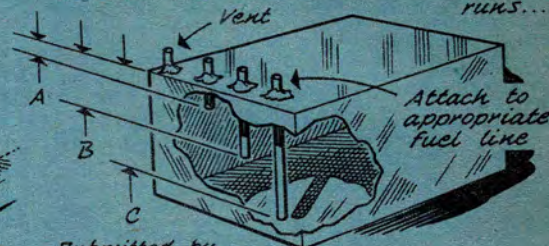
• Edwin D. Gaskins, Jr.,
Alapaha, Ga., uses
two modelers' clamps
to improvise a
handy bench
vise—



Edge of
table or
work bench

Two small
"C" clamps

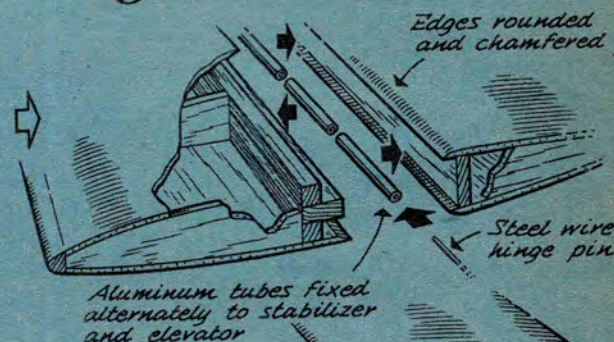
• "Three-in-one" fuel tank eliminates
use of timer for radio-control or
sport flying by standardizing durations
for short (A), medium (B), & long (C)
runs...



Submitted by
Sherman Martin,
Long Island, N. Y.

SKETCH BOOK

• Thick control-line
tail surfaces on
scale or stunt
models can employ
this improved,
realistic type
of hinge—
Submitted by:
P. Barlow,
Cheshire, England

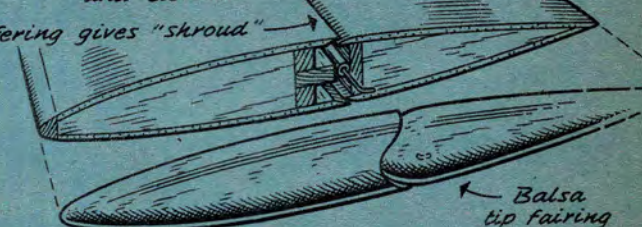


Edges rounded
and chamfered

Steel wire
hinge pin

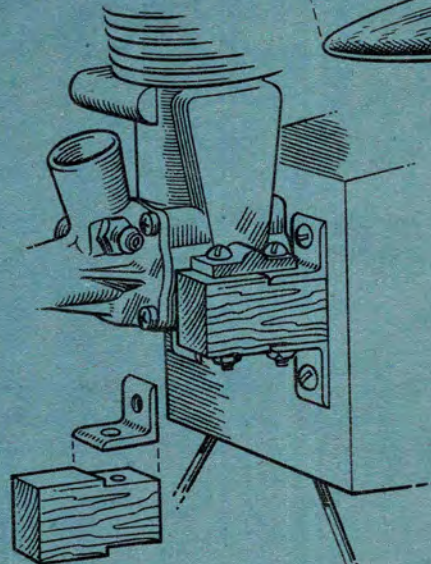
Aluminum tubes fixed
alternately to stabilizer
and elevator

Rounding, chamfering gives "shroud"

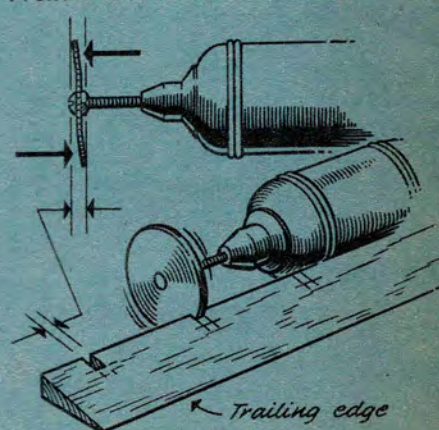


Balsa
tip fairing

• Gear wheels from clock
can be clamped into electric
model hand tool for cutting
notches... bend opposite
sides outward to govern
width of cut—
From Dick Konkle, Atlanta, Ga.



• Small hardwood blocks
with inset aluminum angles
make a compact radial
mount adapter, says
Clark H. Hahn, Stockton, Calif.

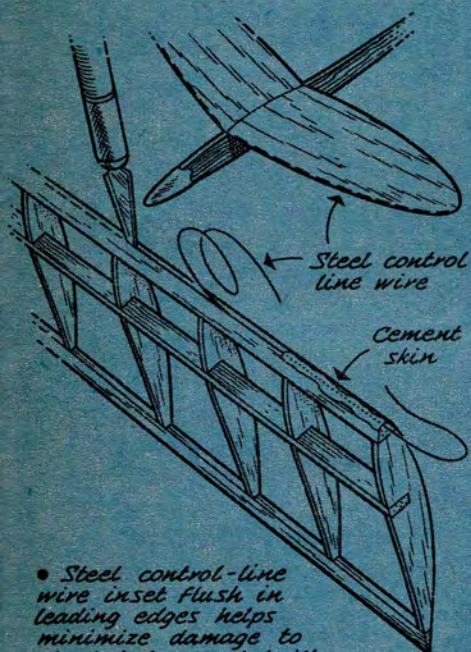


Trailing edge

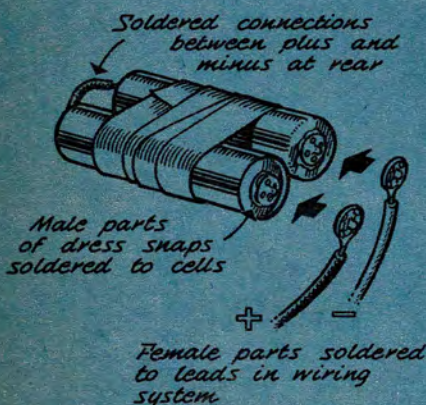
• Quick test for leaks can be made by blowing cigarette smoke into tank, reports Caleb Marler, Burlington, N. J.



Have you developed something new in construction, control, or flying that might interest other modelers? Send a rough sketch—we'll redraw it and pay \$5 for each one accepted. Sorry, we cannot acknowledge or send back submissions.



• Steel control-line wire inset flush in leading edges helps minimize damage to sheet balsa and built-up wings reports Jamie Huntley, Sutton West, Ont., Canada



• Quickly replaceable battery for R/C Flying by Ed Breland, Laurel, Miss.

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TEAM RACING

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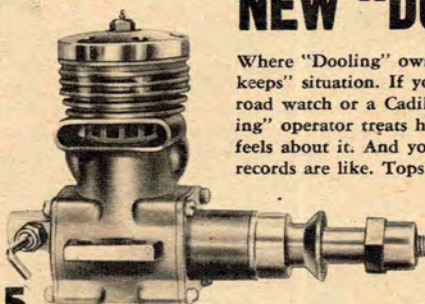
30c

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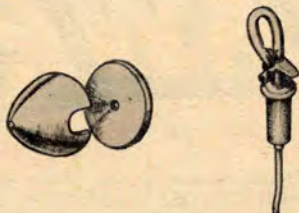
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Accessories of Dupont Nylon, available at your favorite dealer, are made exclusively by Sullivan Products, Phila., Pa., manufacturers of PYLON BRAND wire and accessories.

Beep Box

(Continued from page 51)

radio box (Bud #CU-3002 Minibox) and can be obtained from any radio supply store catering to the amateur trade.

Only other commercial parts used are a 1 1/2 volt plastic motor, of the sort sold in hobby stores under several trade names (ours is a Tiny Atom), two small switches, and a pair of model locomotive drive gears. All the other parts are junk items.

Wide leeway in size, make of parts, mechanism arrangement, and the like is possible. There are no critical tolerances to observe, and most of the matching parts can be mounted to allow a bit of adjustment; this is definitely not a job requiring the services of a master machinist. Because of this flexibility, we will not give a detailed set of drawings, but instead only a few basic dimensions of the model shown, and prospective builders can adapt whatever parts they have on hand to a similar design.

First, let's examine the fundamentals. If you understand these you can elaborate on them as much as your materials and shop resources allow. Take a look at the exploded view of the basic elements. The heart of the works is the drum, upon which are fastened four stop screws and several cam screws. The drum revolves freely on a 1/8" steel tube, and is turned by the worm gear, which in turn is rotated continuously by a small motor. The tube is held firmly between the sides of the case by a rod threaded 2-56 at each end, and both the worm gear and drum revolve freely on the tube with no direct connection between them. Between drums and gear is a clutch disk of leather, and the clutch spring forces the three together.

At the right end of the drum, you will see several cam screws which serve to close the contact points as the drum revolves. Two cam screws are used if you employ the two-arm self-neutralizing escapement, and four are needed with a four-arm escapement. The contact points are adjusted so that they are normally open; they close momentarily every time a cam screw passes beneath.

So far, then, we have a motor that drives a worm gear, the gear in turn driving a drum equipped with cam screws to close the transmitter contacts—twice per revolution for two-arm escapements, or four times around for four-arm escapements. If you set this gadget into operation, connected to your R-C transmitter, you'll find upon turning receiver and escapement on, that the latter will revolve continuously in step with the drum. The only item now needed is a method to stop the drum as required.

In addition to the cam screws, the drum carries four stop screws, one at each end, 180° of revolution apart (these are the Left and Right stops, and two at the center—also 180° apart). A pivoted stop arm linked to the control lever normally engages one of the center or Neutral screws; when you want a turn you shove the control lever to right or left, the stop arm slips away from the Neutral stop screw, engages the Left or Right stop screw, and Eureka!—a turn ensues. The airplane rudder remains in the turn position until you release the lever.

To help clarify action of the stop and cam screws, they have been numbered 1, 3, 4, and 6 (for a four-arm

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escapement) for the cam screws, 7 and 9 for turn stop screws, and 8 and 10 for center, or Neutral, stop screws. Suppose you use a four-arm escapement, and the stop arm is holding the drum as shown. If you push the control lever to Right, the stop arm slips away from stop screw 8 and engages screw 7. Release the lever, and Neutral screw 10 is engaged. Push to Left and release, and stop screws 9 and 8 follow in sequence. With each push or release of the lever, the drum turns a quarter revolution and a single pulse is sent by the contacts.

If you now push to Left again, the drum turns three-quarters revolution, finally stopped by screw 9; the escapement in the plane would then have been stepped through Right, Neutral, and back to Left, as required.

Oddly enough, it is virtually impossible to "fool" the Beep Box pictured here. You can flap the control lever back and forth with wild abandon, but when you settle down to normal operation again, the control lever and rudder will still be right in step. It's uncanny!

Now for a few construction hints. Our drum was made of 9/16" diameter Bakelite rod, and all screws in it are size 2-56. First, mark it out on one end in eight equal segments, then extend eight lines along the surface to locate the hole positions. The only precision job, if you can call it that, is to drill the shaft hole as nearly central in the drum as possible; a wobbling drum causes uneven contact action, but even this makes little difference if your drive motor has plenty of power.

The clutch disk we found best was cut from a discarded pigskin glove. Felt from an old hat, and a disk of cork also worked fairly well. The clutch spring must be strong enough to turn the drum reliably against the drag caused by operation of the contacts, but not so strong as to cause excessive friction.

The worm and gear set to use depends on your motor speed. Our Tiny Atom turned about 4,500 rpm with no load and we chose a 32-1 ratio gear set. With the unit in operation, the motor turns about 3,500 rpm when the drum is held by the top arm, but speeds up between stops; the average drum speed is probably about 125 rpm. When operated from a two-volt storage cell, the drum speed goes up to about 200 rpm, but the airplane escapement follows perfectly; and at the latter speed you really get fast control action.

The stop arm, shaft, and bushing came from an ancient radio rheostat. The arm was cut at the tip so that when rotated just far enough from neutral position to release a Neutral stop screw, it is wide enough to catch one of the turn stop screws. The stop arm set screws moves between two centering screws that force the stop arm to neutral unless the control lever is held over. The lever (an elongated radio knob) is prevented from turning too far by a pair of limit screws on the front of the case, the same screws that hold the centering springs.

A pushbutton connected in parallel with the contacts allows one to "get in step" with the plane escapement before launching; it also serves as an emergency button, should the Beep Box and escapement get out of step while the plane is in the air.

A motor switch and four-wire cable about complete the contraption. The drive motor draws only about 360 ma. and can be operated on any 1½-2 volt source, such as transmitter A batteries or glow plug cells.

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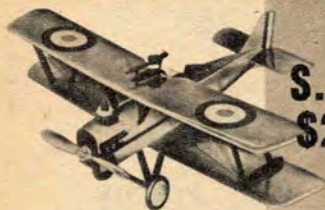
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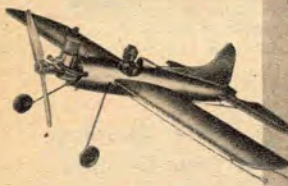
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"Tommy" Scout

(Continued from page 46)

the front section, being careful to mark strut positions and landing gear location on side of fuselage opposite the $\frac{1}{4}$ " sheet.

After the sheeting is in place, drill holes for the struts. Glue a piece of silk to the firewall; then pull the ends back and glue them to the sides, top, and bottom of fuselage, pulling as tight as possible. This reinforces the firewall and stops any tendency to pull out.

A very light and simple construction is used on engine cowling. Cut out the two $\frac{1}{16}$ " plywood rings and sheet balsa rings as shown in stations 10 to 13. Glue 10, 11, and 12 together and allow to dry. Select a piece of $\frac{1}{16}$ " sheet balsa that will bend across the grain easily and cut four slices equal to length of sheeting on cowling. Glue these pieces together to form a long ribbon of cross-grained wood and allow to dry. Wrap this band around the plywood frame and cut to length so it will make a complete ring. Glue the ring together, holding with spring clothespins until glue dries. Glue this in place over the two plywood rings and the assembly is ready to sand.

If sheet should shrink any while glue is drying, steam slightly to expand so it can be assembled. Attach the assembly to the firewall with two small wood screws through mounting lugs on former 13. Cut out for cylinder, exhaust and needle valve. Glue the $\frac{1}{16}$ " sheet balsa formers to front of fuselage in line with engine cowling and cover with triangular pieces of $\frac{1}{16}$ " sheet balsa to form engine accessory cowling on side of fuselage. Sand to fair in with engine cowling.

Make up wire wing struts and landing gear braces as shown on separate details in plans. Note that ends are wrapped with copper wire, $\frac{1}{32}$ " space between each turn. Solder these ends and remove all the excess solder by taping on a wooden block while still hot. Bend the ends to angles shown in front view so wing struts will enter the fuselage at a 45 deg. angle, and the wing section will be vertical. Wrap the ends with string and glue between the turns of copper wire and allow to dry.

Assemble struts and top wing to check for proper alignment, making any changes necessary, and then disassemble again. Mount bottom wing on fuselage and fill center section with sheeting, where landing gear enters the wing surface, being careful to mark locations for landing gear struts. Drill holes through the sheeting into the $\frac{1}{4}$ " balsa blocks, then assemble landing gear to check for proper alignment. When fitted properly, disassemble and set aside. The model is now ready to cover and paint.

Cover tail surface and all wooden parts with lightweight rubber band tissue. The wings and stringers sections on the fuselage should be dry-covered with lightweight Silkspan. Covering this wing structure wet will result in too much strain and a badly buckled trailing edge. Apply three or four coats of clear dope over the paper and then sand lightly. Apply two or three coats of talc and dope over the wood surfaces of the ship, and one thin coat on the papered areas. Sand very lightly over the papered areas with No. 320 paper, being

"AT" Plans

- (No.) **Fokker Triplane**, 20 inch wingspan, control line for .09 engines; **B-36** solid model, 14 inch wingspan; **Ole Slippery** team racer, 30 inch span, .29 engines; **Horton IV** flying wing scale towline glider, 35 inch wingspan; **Little Senator** Half-A free flight, 30 inch span; **Bienenstein's Mulvihill Trophy** winning outdoor rubber stick model, 54 inch span.
- ATA 521** **North American AT-6** control line flying scale with complete cockpit details, 40 inch span for .32 to .60 engines; **Bristol Bullet** rubber powered scale biplane, 18 inch span; **Dunham's All-American** rubber powered cabin model, 59 in. span.
- ATA 522** **Happy Medium** record-holding free flight, .29 or .31 engines, 68 inch span; **Executive twin Jetex** (#50) powered all balsa semi-scale, 18 inch wingspan; **Double Whammy** scale-like staggered wing U/C stunt for .29 to .35 engines, 36 inch span.
- ATA 523** **Don Still's Stuka Stunt** model; **Thomas-Morse** control line flying scale; **Hall-Massey** speed models.
- 452** **Air Force Champion** team racer **Chow Hound**, .29 engine, 26 inch span; **Consolidated PB-2a** U/C flying scale for large engines, 56 inch span; **Ehling's National Half-A PAA-Load** winner, 33 inch span; **Grzeszczak's PAA-Cargo** free flight for Half-A engines, 40 inch span.
- 352** **Batiri** free flight; **Everitt's Wakefield**; **Bonnie Lass** Half-A team racer; **Combateer** combat model; **Half-A Helicopter**.
- 152** **Chester Racer**; **Hot Canary**; **K. C. Cutie**.
- 1251** **Bourgeois' Jexebel** team racer; **Storey-Willard Korker**; **deBolt's Half-A Twin**.
- 1151** **Douglas Mailplane**; **F/F Glutton**; **Half-A Stunt Chum**; **ROG-ROW** combo sport F/F.
- 1051** **Rumpler Taube**; **The Fling**; **Dummy Lifter**.
- 851** **Screamin' Demon** speed job; **Nordic towline glider**; **Jetex Opel**.
- 751** **Stunt Rocket** U-control stunt; **Flying Wing F/F**; **Skylark** combo parts.
- 551** **Fleet** U-control scale; **balsa glider trio**; **Clipper Chisai** PAA-Load.
- 451** **AT Interceptor**; **PAA Cargo Carrier**; **Whee-38**.
- 351** **Matthews' Crowbar** PAA-Loader F/F; **Beck's Petite Pete** A/2'er; **Ehling's Wakefield**.

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(AT-452)

careful not to cut through to the ribs and stringers. Apply one coat of clear dope to fill pores and sand again. Follow with two or three coats of olive drab all over.

Add trim, using Trim Film for the insignia and large numbers. After the Trim Film is pasted on model, wipe firmly with a rubber squeegee cut from an old rubber tube. Keep rubber wet while wiping the Trim Film so it will not mar the surface. This removes all the bubbles and gives an even job. Add the ailerons using narrow strips of black Scotch Tape, then apply fuel proofer on all of the ship. It is best to use Aero Gloss primer on engine cowling and on firewall rather than talc and dope, as this will stand up under continuous contact with the fuel. The model is now ready for assembly.

Make a trial assembly of the top wing and all struts to see that everything fits properly, and then remove the wing. Glue wire wing struts into fuselage and add pine caps to make them look like wooden struts. Fill holes in the top wing with glue and coat the ends of struts, then push the top wing in place and line up.

Allow the center struts to dry for 24 hours, then spring the ends of wing slightly and add the end struts. Glue landing gear wires in place in fuselage and bind on the axle with copper wire and solder. Cover landing gear struts with wooden caps the same as cabane struts. Put in the rigging with carpet or heavy button thread and your ship is complete.

Before making any flights, check the model carefully for balance. The point indicated on the plans is the rearmost location for steady flight. Add lead in nose, if necessary, to bring the balance up to this location. Plug up one-half of the engine air intake with a small piece of white pine. The scale propellers shown on the plans operated with the wooden plug will give plenty of power for all maneuvers. Fly on .010 diameter lines, 55 feet long.

Bill of Materials

1. 5 pcs. 1/16"x3"x36" balsa; 1 hard, 3 medium, 1 soft. 2. 1 pc. 1/4"x3"x36" hard balsa. 3. 1 pc. 1/8"x3"x36" hard balsa for spars. 4. 1 pc. 3/4"x2" balsa, 24" long. 5. 1 pc. 1/16" plywood, 2"x6". 6. 1 pc. hard 1/8" plywood, 3"x4". 7. 3 pcs. 3/32" sq. balsa. 8. Pine board from box, for struts. 9. 1 pc. 3/32" steel wire, 6" long. 10. 1 pc. 1/16" steel wire, 36" long. 11. 1 pc. .045" wire, 36" long. 12. 2 pcs. .025" wire, 36" long. 13. Cloth for hinges. 14. 1 pc. silk, 12" square. 15. 1 pc. 1/8" rubber tube, 12" long. 16. 1 pc. 5/16" O.D. rubber tube for tires, 14" long. 17. Fuel tank. 18. Bellerank. 19. K&B 29 or Veco 29 engine. 20. 10/6 Power prop. 21. Trim Film; red, white, blue, black. 22. Olive drab, gold and clear dope, glue. 23. Light Silkspan and rubber band tissue.

Weight Analysis

1. Engine, 7.0 oz. 2. Wings, 2.6 oz. 3. Tank, 1.6 oz. 4. Fuselage, 3.0 oz. 5. Tail assembly, .43 oz. 6. Landing gear frame, .48 oz. 7. Wire wing struts, .27 oz. 8. Cowling, .30 oz. 9. Wheels, 1.29 oz. 10. Wood struts and cap, .50 oz. 11. Paint, 3.50 oz. Total weight, 20.97 oz.



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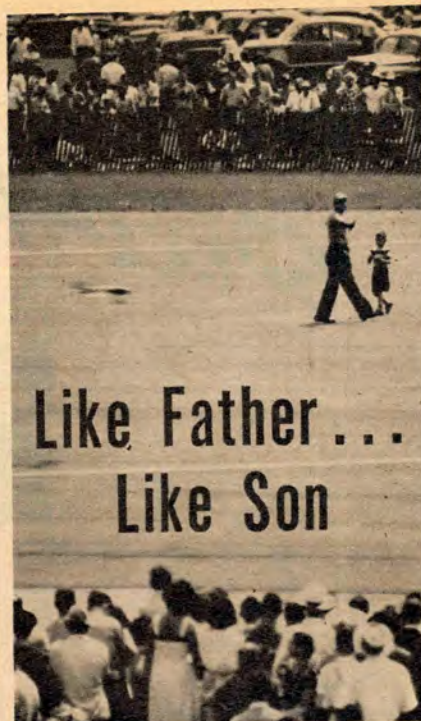
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Air Adventurers

(Continued from page 17)

between aircraft in a formation, and between aircraft and base or carrier are likewise vital, and, should the target area be overcast or too far below for the bombardier or navigator to pick up the check points, the magic of the radar man and his instruments will help write "mission accomplished" in the log.

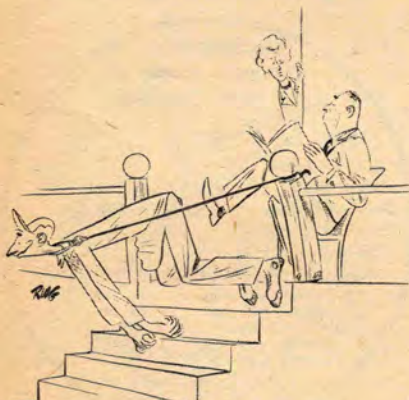
And that is not all. Should enemy fighters streak up to intercept that roaring bomb carrier, or deck gunners from a surfaced enemy submarine go into action, what will save them from possible destruction? The aerial gunners in the power turrets or in the fire-control seats directing those fantastically accurate electronically sighted weapons. Without experts at the fire control instruments, the plane would be a sitting duck for enemy fire, an easy mark perhaps for a red-starred fighter, who right now may be walking home from his school with a bundle of books under his arm. He'll get his home work right. . . . how about you?

Sure, the boys in the bombers, the patrol bombers, and the fighter planes may get some medals, but they represent not only their skill but the skill of all the guys in the service. When a football captain accepts the trophy for the league championship, he accepts it for the team, not for himself, for he did not win it alone.

So too, in the Navy or the Air Force, the achievements of the "front men" are the product of the work of all the guys on the "team." Don't be too choosy about what position you play; it's the victory that counts. And don't be in too big a rush to get into the game. All you can learn beforehand in school, all you can pick up from the books and blackboards you are scanning now will come in handy later on when you are in uniform, no matter what shade of blue.

Keep abreast of aviation activity through reading good aviation magazines. Join the Civil Air Patrol if there is a unit near you. Write to the Civil Aeronautics Administration for a list of their aviation publications and check your own local library for the newest aviation books. Get, read, and remember—it will pay off.

Remember, learn like an airman, and be ready to fight like an airman, for keeps. Study hard, don't worry about what position on the United States Naval Air Service or Air Force team you will play, because there will be room and demand for all. And don't try for the varsity until you are really ready—the medals will wait.



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Dope Can

(Continued from page 54)

Contestants will provide their own thongs and no flight will be recorded unless thongs are properly fastened.

Lots of other dope on the Model Flying Fair is available by writing the Mirror. Something new are the Fair's "Blue Ribbon Beauty Classes" which include 1) best scale flying model; 2) best scale non-flying model; 3) best Navy scale flying or non-flying and 4) most beautiful non-flying scale model. That really does cover the category and should bring a cheer from every type of scale model fan.

So it's June 8 (rain date, June 15) when all eyes will be turned on Bethpage.

Half-A Flying Scale. There's great interest in the small free flight scale models throughout the country. We've had lots of requests for suggestions on how such meets can be conducted and several times a representative set of rules has been published. Most of these have come from the West Coast where the majority of Half-A free flight scale competition flying seems to have been taking place.

Now we have a Mid-West (well, the northeast section of the Mid-West!) set as established by the Detroit Balsa Bugs. These rules, say the club members, were designed to give the fairest possible credit to both the beauty and flying ability of the model. It's obvious a lot of work has gone into them and we'd like to pass them on right here and now:

Flying—motor run, 20 seconds; official flight is 25 seconds or more; you get six attempts in which to establish three official flights; entry must rise off the ground; scoring will be total time of the three official flights; you're permitted no more than 120 seconds per flight. One point will be awarded per second of flight up to 120 points. No more than 360 flight points can be awarded.

Awarding of points for scale—fidelity to scale—maximum number of points to be 90 broken down as follows: fuselage, 30; empennage, 20; wing, 20; landing gear, 15; propeller (if constructed by builder), 5. Maximum number of detail points to be 90 broken down as follows: up to 60 points for markings, struts, control surfaces, engine detail, etc. Up to 30 points total for interior details, seats, instrument panel, con-

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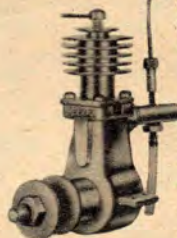
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trols, etc. Maximum number of covering and finish points to be 70 and to encompass smoothness of covering, appearance of finish and color doping.

Under "construction and neatness" heading 110 points can be granted which include straightness of spars, longerons, ribs, stringers, etc., and neatness of construction. This represents the biggest hunk of points available other than in the actual flight operation, but we think it a most important category providing the judging is by competent, fair-minded judges. A total of 360 points can be awarded for scale; this, however, is left to the discretion of the judges.

Further Balsa Bugs requirements for this event state that the A.M.A. weight rules apply, scale and working plans must accompany the entry which must be a replica of a full-size aircraft.

All the regulations are simple enough and are briefed to the point where they will fit on an 8½ x 11 inch sheet of paper—a most commendable job. If you'd like a copy you can probably obtain same from the Detroit Balsa Bugs, 18700 Hellen Avenue., Detroit 34, Mich.

The bugs, incidentally, are conducting a vigorous campaign to rouse action on the part of older flyers to bombard the Plymouth folks with reasons why the Internationals should be opened up to all age classes. We'll be watching the response with much interest.

PAL Clubs Organizing. A piece of good news is the announcement that PAL Clubs (Plymouth Aero League, not the Police Athletic League) are being established on a state-wide basis. The framework has been laid in Minnesota and it is expected that activities in that state will be a guide for similar set-ups throughout the nation. It all adds up to increased air-modeling work and a better chance for the novice to get started right.

"Pal Aero Club of Minnesota" is the official title of the organization which is expected to be the guiding light for many state PAL groups. It has been organized through the cooperation of Plymouth dealers, hobby shop people and public spirited enthusiasts who give time and effort with no compensation to the organization. Plymouth dealers provide the necessary meeting facilities, caps, T-shirts and achievement awards. The Twin City Hobby Dealers (Minneapolis-St. Paul) furnish support and cooperation in outlining the program and supplying information as required in the curriculum. Qualified activity leaders act as instructors.

Minnesota Pal Clubs appeal to boys in the nine-year-old age group and by means of a 30 weeks' course extending from October to June instruct them step by step from the elementary procedures of sand papering, gluing, safety precautions, etc., through the building and operating of the most complicated type of models as far as the boy's ability and desires allow.

Individual registration fee for joining the club is \$1. This entitles the enthusiast not only to membership in the club, but a supply of building materials and several elementary kits. Then each member pays 5¢ dues at each meeting. This nominal membership fee is intended to give the new recruit the feeling of responsibility and covers the (Continued on page 78)

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On The Ways ...

FAIR AMERICAN



In October, John Stevens went to the Naval Academy Museum at Annapolis, and with permission of the Curator took off the lines and dimensions of this Revolutionary War brig, a model in the Rogers Collection. Model Shipways now has the plans, and the kit should be on the market about June.

Brief description: 102 ft. on deck, 36 ft. beam, 14 guns. This is large and beamy for a brig of late 18th Century. However, her easy lines and large spread of canvas spell a fast sailer. Privateers had to be.

The Academy model is of British origin, indicating FAIR AMERICAN was probably a captured vessel. Was it the Charleston, S. C. brig of the H.M.S. YARMOUTH action, or the Philadelphia privateer—or are these brigs one and the same? Research continues.

Our kit will be on 5/32" scale (hull about 17" long) with main wales and thickstuff cut in. At this time we have white prints on 1/4" scale (rigging plan on 3/16"), per set of 3, list \$3.75

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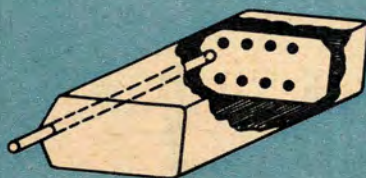
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Century Resorter "20" with convertible top is one of two new boat kits by Sterling Models. This is a \$3.25 kit job. Beam is 4 1/2 inches, length is 12 1/2 in. Frame is notched for automatic alignment; exterior of hull is mahogany. Authentic decals, windshield, yachting ensign. Step by step drawings.



CENTURY RESORTER



FROOM TANK

New Froom anti-surge tank with these features: 90% anti-surge; baffle gives steady flow of fuel at all times, shape allows greater fuel capacity in less space; fuel lines soldered to side of tank to prevent vibration; all tanks boiled clean. Sized 1" high x 2" wide in lengths: 2 1/2, 3, 3 1/2, 4 inches.

This is a big month for Sterling Models. Here is the Matt Kania-designed, Sterling-produced F-51 Mustang for A-B-C engines. Span 38 in.; price \$2.95. Designed and flight tested for combat stunt flying. Shaped, notched leading and trailing edges; die-cut ribs, tail surfaces; die-cut shaped fuselage.



STERLING'S
F-51



Trust you've ordered your personal copy of *Air Trails Model Annual for 1952*! For the first time it's available on your newsstand, at the hobby shop or by mail from Air Trails, 304 East 45th St., New York 17, N.Y. By mail price is 50¢ to those in U.S. and possessions; 60¢ in Canada; \$1 elsewhere.



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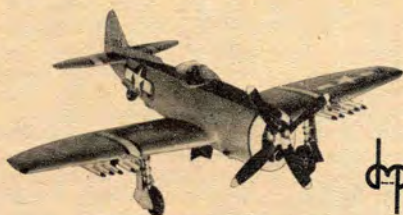
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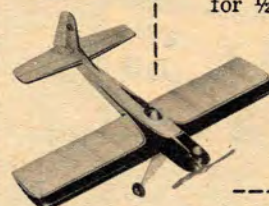
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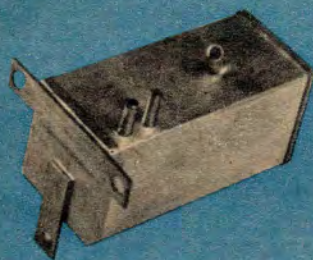
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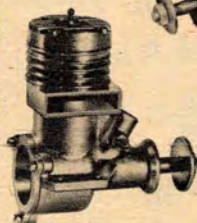
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(Continued from page 75)

essential materials used in the first 10 weeks of the course. The 5¢ from each boy collected at each meeting remains in the club treasury for club use.

Organization of the Minnesota Pal Club is patterned after that of the Cub Scouts. Individual groups known as "squadrons" are limited to 10 boys each, since it has been learned from Cub Scout experience that this is the maximum number which can be successfully instructed at one time. At four to six week intervals Squadron Assemblies will be held where each member participates in the program. At such affairs parents will be guests. At the Squadron Assemblies awards to which the boy is entitled as outlined in an advancement program will be made.

Meetings are held once a week from 7 to 8:30 p.m. These gatherings are under the supervision of experienced adult instructors designated Squadron "Captains" who are assisted by qualified younger enthusiasts known as Squadron "Lieutenants." Meetings are held at Plymouth showrooms throughout the area; the PAL Club member is always assigned to the Squadron located nearest to his residence.

Twenty-six achievement steps have been drawn up which begin very simply with the preparation of an aircraft scrapbook which must be kept up to date throughout the course and ends with the member flying in an actual PAA-Load meet. In between the Pal Clubber has built nine models and has a thorough grounding in construction and flying procedures. Eight electives are offered—these including the building of all types of competition-type models and the flying of such craft as team racers, combat models or Clipper Cargo ships. Fifty related classroom subjects will require the modeler to "bone up" on all phases of his hobby. These also range from simple subjects such as "name 3 fastest planes in Army (oops!), Navy" to a complete description of radio control flying including an analysis of how signals are transmitted and translated into flight patterns.

We've gone into this wonderful program in considerable detail because it looks as if at long last a really workable program on the local level is about to mushroom nationally. There's been nothing since the old A.M.L.A. (Airplane Model League of America) which offered as much promise as the Plymouth Pal Club program. When you consider there are about seven times as many Plymouth dealers in this country than currently active model clubs you can easily imagine how modeling will grow

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if a majority of these automobile dealers undertake the sponsorship of junior aero groups.

Sincere congratulations to all the good folk of the Twin Cities who are working on the Minnesota Pal Aero Club program. We expect great news to continue from what has become aeromodeling's #1 state!

Hail the Chief! New president of the Academy of Model Aeronautics is Frank B. Bushey of Hartford, Conn. Mr. Bushey is the past secretary-treasurer of the organization and is well qualified to serve as AMA prexy. Until he became overly busy with Academy activities Frank was an advocate of the big free flight school—and we do mean big! Besides being a crackerjack model builder and flyer, Mr. Bushey is an experienced teacher and organization official who can give lively leadership to the AMA.

Secretary-treasurer of the NAA division is Bryton Barron, Springfield, Va. Vice-presidents are Bill Wargo, Lee Shulman, Harry McCall, John Young, Bill Thomas, Pete Vacco, Warren Bartlett, Paul Gilliam, C. L. Bristol, Mrs. Myrtle (Mom) Robbers and Edward (Ted) Enticknap.

Coming Competitions. The Tropic Aeros MC of Miami, Fla., is sponsoring an AAA U-control meet March 15 and 16 at Miami. AMA rules apply; all classes of U-control with AMA age groups. High point trophy plus \$600 in trophies and cash. Flying runs from 9 A.M. to 6 P.M. each day. Nominal entry fee; housing available by contacting Ralph Prey, 200 Albatross St., Miami Springs, Fla. A similar meet for free fighters run by the same outfit is planned for

sometime during the summer months.

Here's a big one! The Pacific Model Aircraft Championships conducted by the Southern California Model Association. To be held at the Sepulveda (Cal.) Flood Control Basin on three consecutive Sundays in May divided up as follows: May 11, Half-A, A, B, C free flight—all R.O.G.; May 18, control line events; May 25, rubber models, hand launched and towline gliders and radio control. This is certainly a novel way of handling all the events and we'll watch with much interest how the affair goes off. Full details from Robert P. James, SCMA, 527 East 55th St., Long Beach 5, Calif.

Also scheduled for the Sepulveda Basin "about 1 month after the 1952 Nationals" is the third annual Half-A free flight scale contest by the Engle-

wood, Calif., Flightmasters. At least you can't say they didn't tell you far enough in advance!

Rockford, Ill., Aero Aces will hold an AA meet on June 15. The director is H. E. Heminger, 836 Diamond Court, Rockford.

Club Chatter. The newly formed Niagara Aeronauts of Niagara Falls, Ontario, have held their first election with the following selected: Jim Crossley, president; Gordon Grice, veep; Lorn Piva, secretary-treasurer. The corresponding secretary, Francis Cupolo, 1352 Stanley Ave., asks club secretaries in Ontario, Western New York State, northern Pennsylvania and Eastern Ohio to forward contest info. Here's a chance, fellows, to add "international" flavor to your competitions.

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While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this April 1952 index.

The Port City Buzzards of Muskegon, Mich., are lending considerable strength to the youthful modeling program now underway in the community sponsored by the three local Plymouth dealers. Pal Clubs are in operation for grade school enthusiasts and the Buzzards are setting up interclub meets which they will conduct for the novice flyers. Here's some sound reasoning. Lend a hand to the beginners now, they'll soon be qualified for membership in the older, experienced Buzzards group.

The PCB's are about 55 strong; at least 25 show up on alternate Monday evenings for meetings at Dan Ferrell's hobby shop. Our correspondent, John Anderson, says Dan is serving as president and doing a fine job. The Buzzards fly mostly U-control models, but try to get in some free flight work as frequently as possible. In wintertime flying is off the ice on Mona Lake. The club has its own control line field which boasts a clay surface and is exceptionally smooth. Free flight is at the edge of town in a large grassy field.

Personal Matters. Swedish model enthusiast anxious to correspond with American flyers: Inge Bergstrom, Th. Sallbergsgatan 10, Varnamo, Sweden. Wants 14-16 year old pen-pal: Dennis McDaniel, 625 Wilkinson St., Logansport, Ind. Here's a model builder who we'd bet would like to hear from internationally-minded fans: Leonardo Romao, Al. Barao de Limeira 114, Sao Paulo, Brazil, who has competed in Wakefield elimination meets down there and sounds like an all-round model man. Seeking U-control pen-fans: Raymond Schluter, Jr., General Delivery, New Braunfels, Texas. Looking for correspondent about 15 interested in all types of model building except railroads: Jay Selz, 16 Center St., Ellenville, N. Y.

Here's an interesting note from the northwest: "George Mason, model builder, pilot, collector of aviation data and aviation enthusiast since 1927 has been compiling and illustrating a book on the American light plane. Volume one will be on ultra-light jobs, such as the Heath, Lincoln, Corben and Mooney. Anyone having photos or drawings which he would like to see included in this volume can write George at Rt. 4, Box 1260, Roseburg, Ore. All material (he promises) will be returned in good condition and will be insured. However, please do not send any material unless requested, as it may be a duplication of material already on hand. All correspondence will be answered. Data on little-known, home-built planes is especially desirable."

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| ☐ 1909 Model "T" Ford | \$2.95 |
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| ☐ 1913 Mercer Raceabout | \$3.95 |
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MODEL ASSOCIATIONS

MONTANANS—Important Notice. Send self-addressed envelope for free decal and membership in the Montana Model Airplane Builders Association to Joe Forbes, 737 Maryland Ave., Butte, Mont. Sec. Please tell your friends of this free offer. R. S. Carroll, Pres.

The Last Word

Press time info. Added R/C intelligence . . . reduction in rcvr price of Citizen-Ship equipment announced by Vernon C. McNabb Co. It will sell for \$29.95 complete with tube & antenna, less batteries. Transmitter price is \$39.95. Berkeley Models unveils Super-Aerotrol for new 27.255 mc; will be in kit form and include metal case big enuf for batteries. Also furnished is vertical whip antenna & precision crystal. Tube & batteries extra. Xmtr price, \$21.95. New rcvr is similar to regular Aerotrol, but has iron-core tuning system and new relay. XFG-1 tube not included in \$13.95 price on kit. Rcvr may be made to operate on 27 mc or 52 mc. Former DE-Aerotrol kit with parts for xmtr, rcvr and escapement still available for \$22.95, less tubes and batteries. Add to that write-up on Sterling's Ringmaster these facts . . . span is 42 inches, wing area is 386, weight is 22 oz. with .29 engine ready to fly. Ed Manulkin of Sterling says plane does well with hot .19, though they bill it as a B-C job.

As we close issue, things are really humming in the "AT" offices and per usual something comes along to add to the hustle and bustle. This time it was the Institute of the Aeronautical Sciences' meetings and Honors Night Dinner. I.A.S. meetings always bring in a crowd of leading aircraft mfgs and military folks from all over. We had a chance to meet with Edward H. Heineman of Douglas, chief engineer-designer of the fabulous Skyrocket. In the 1,200 to 1,500 mph region big problems are lateral and yaw instability which requires gyro damping devices and metals capable of withstanding temperatures of over 600 deg. F arising from air friction.

Modeler making good. Luncheon conference with W. Hewitt Phillips of the NACA Stability Research Flight section at Langley Field was stirring reminder of how modelers contribute greatly to full-scale American aircraft industry. "Hew" started modeling at 9; his model work led him to take up aeronautical engineering. Today he has responsible job in government aviation labs.

'Ray for May! Swell issue of "AT" ahead . . . "Red" Reinhardt's slick "Galloping Comedian"—the plane he had at the big Plymouth International meet . . . not at the eliminations. Capt. Page Racer is a nifty F/F scale.



AT's Tech Ed AD shown trying out Ayer's Aerial Machine. See "First Flying Saucers."

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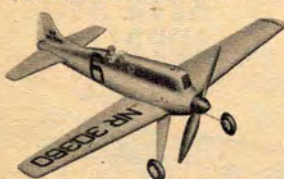
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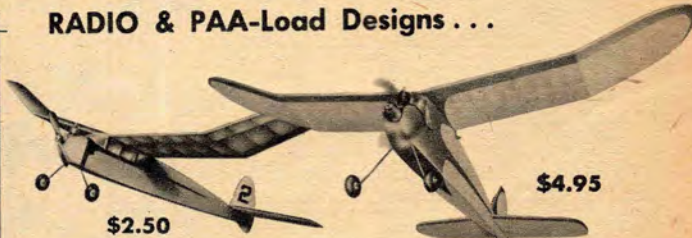
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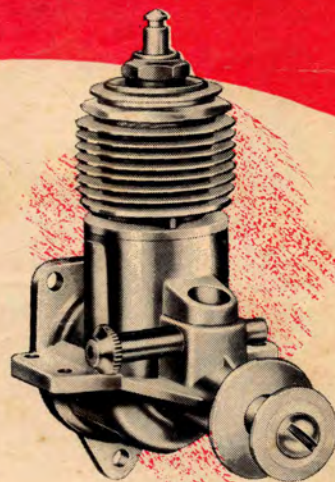
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